

Community Assistantship Program

**Forest Resource Management in Southeast Minnesota: A
Landscape Perspective**

Forest Resource Management in Southeast Minnesota: A Landscape Perspective

Prepared in partnership with
Minnesota Forest Resources Council

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FOREST RESOURCE MANAGEMENT IN SOUTHEAST MINNESOTA

A LANDSCAPE PERSPECTIVE

Leah Class and Chad Skally

May 31, 2002

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FOREST RESOURCE MANAGEMENT IN SOUTHEAST MINNESOTA

A LANDSCAPE PERSPECTIVE

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EXECUTIVE SUMMARY

The Minnesota Forest Resources Council was established in 1995 by the Minnesota Legislature to provide advice to public and private organizations on forest sustainability issues. In 1998 and 2000, specific references were added by the Legislature to address forest resource sustainability in Southeast Minnesota. The Council partnered with the Experiment in Rural Cooperation to create a broad statement of key issues, desired future conditions (visions), goals, and strategies. As used in this report, an issue is a concern based on current information and people's values that relate to a problem or focus area addressed by forest resource reports. A vision refers to a future desired condition for an area 100 years or more in the future. Goals are specific benchmarks to strive towards in addressing visions and resolving issues. Goals are detailed and assist in developing strategies, which are specific tools and techniques to accomplish goals and move toward achieving visions.

This Landscape Perspective report has been developed by utilizing existing planning documents gathered from stakeholder groups in Southeast Minnesota. Local units of government, agencies, and groups were contacted by mail and telephone in order to collect forest resource planning documents. Twenty documents were received and reviewed. References in each document concerning forest resource issues, visions, goals and strategies were summarized. Ten similar vision themes were identified from the summaries, and are presented with their respective goals and strategies.

Based on the similar visions, goals, and strategies, a set of common themes was developed as a template to provide guidance to agencies and individuals utilizing this report:

Streams, lakes, and wetlands are surrounded by healthy riparian vegetation, dominated by native species. Timber harvest and rural and urban development are restricted close to water resources, thus reducing the potential impact on water quality. Diversity of vegetation and animals is promoted through environmental corridors on public and private land. Wilderness areas, park and trail facilities are managed to support the integrity of natural areas and facilitate public access and recreation.

Cost-share and incentive programs are used to promote forest management and forest regeneration. Professional assistance is readily available to private forest owners for forest management and during forest harvest, in order to optimize private forest resources and fulfill specific forest owner goals.

Community and citizen action groups are active in natural resource management, monitoring, and restoration. Education programs for children and adults promote appreciation and stewardship of the environment.

Natural communities and regionally significant areas have been identified and management objectives have been developed for their sustainability. Best management practices are emphasized in forest management activities. Education on proper implementation of BMPs is provided to contractors and landowners, and monitoring of their success is performed.

Native species are protected and their populations maintained. Exotic species and invasive diseases are identified and their effects minimized through proper forest management. A GIS of natural and cultural resource information has been developed for the region to guide planning and monitoring activities, and is

continually updated. Public agencies, private organizations, and interested individuals correspond often to ensure proper management of forest resources and collaborate to promote the continued health of Southeastern Minnesota's unique environment.

The information in this report can be used to assist groups in coordinated landscape management of forest resources. The ideas presented are meant as a preliminary guide for developing specific goals and strategies to implement landscape planning in Southeast Minnesota. The ideas will be modified and refined as implementation and coordination occurs.

INTRODUCTION

In 1995, the Minnesota Legislature enacted the Sustainable Forest Resources Act (89A). The Act established the Minnesota Forest Resources Council to provide advice to the Governor, Legislature and management agencies on forest sustainability issues. Under the Council's direction, the Act established the Landscape Program to "enable long-range strategic planning and coordination to occur, to the extent possible, across all forested regions of the state and across all ownerships" (Minnesota Statutes Chapter 89A.06). This is a voluntary program designed to develop a broad vision of forest sustainability along with goals and strategies to help move in that direction. The planning must recognize existing planning processes and identify a general process that fits with other landscape-based forest resource plans.

In 1998 and 2000, the Legislature added specific references for Southeast Minnesota (Figure 1) to complete a broad statement of desired future conditions (visions), key issues, goals, and strategies. In 1999, the Council partnered with the Experiment in Rural Cooperation to define issues and opportunities related to management of forested lands in southeast Minnesota. That effort started with a survey sent to over 90 stakeholders. In the spring of 2001, some of these people met to discuss the priority issues and opportunities identified by the survey. Another meeting to develop research and education projects with the University of Minnesota was held in September 2001.

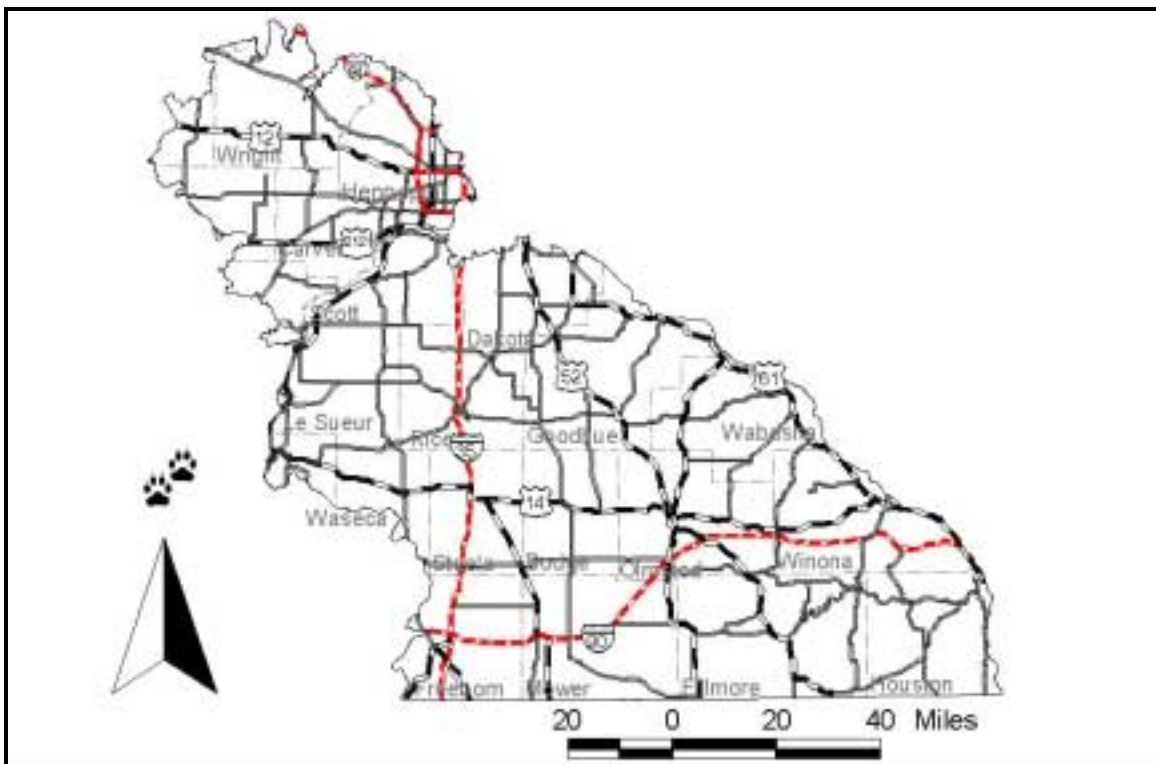


Figure 1. Map of Forest Resources Council's southeast landscape.

The Council is contributing to and complementing this work by developing this Landscape Perspective report that provides issues, visions, goals, and strategies for the southeast landscape. In order to do this, existing planning documents from local units of government, agencies, and groups

in the area were utilized. These documents were searched for their references to forest resources issues, visions, goals, and/or strategies within the southeast landscape.

These excerpts were summarized and compiled into similar vision themes. The information in these themes can be used to assist groups in coordinated landscape management of forest resources. The next section describes the methods used to collect the data, followed by the landscape perspective summary of the data. Lastly the summaries of the individual reports are presented.

METHODS AND DEFINITIONS

The main objective of this report is to highlight landscape issues, visions, goals, and strategies presented in forest resource management and planning documents for Southeastern Minnesota. As this is a qualitative summary that involves a great deal of categorization, the authors used the following definitions to minimize bias in classifying the data into these four components.

- Issues

An issue is a concern based on current information and peoples' values. It relates to a problem or focus area that the forest resources report addresses. It may be a general idea, "there is not enough wildlife", or very specific, "native tree species in this county are ten times below their historic range". Issues assist in developing a vision.

- Vision

A vision is a look into the future. In landscape planning a vision refers to future conditions of an area in 100 years or greater. It often is very vague, yet helps managers and stakeholders come to agreement and begin to develop goals. To continue the examples above some visions might be to "conserve biodiversity" and "promote regeneration of forestlands."

- Goals

Goals are specific benchmarks to strive towards in addressing the vision and resolving the issues. Goals often look in the near future, 10 to 20 years from now. Goals are detailed and assist in developing strategies that address the vision. Given the example above some goals may be to "limit development within environmental corridors to promote biodiversity" and "increase occurrence of native tree species by 30 percent"

- Strategies

Strategies are methods to accomplish goals and move toward achieving a vision. They provide land managers with tools and techniques to accomplish goals. Landowners often use only strategies that apply to their land. Examples of strategies would be "use direct seeding methods on sites suitable for native plant species" and "reduce high grading of trees and if possible increase natural regeneration through appropriate silvicultural methods". It is important to note that not all strategies apply to all land managers because of their specific nature. Strategies may require particular site characteristics, resources, or land manager objectives in order for implementation to be successful.

In order to fulfill the objectives of the study, forest resource management and planning documents were gathered from stakeholder groups in the region. Appendix A is a copy of the memo sent to numerous agencies and groups requesting plans relating to forest resources. Groups who did not reply to the memo were also contacted via phone. Twenty documents were reviewed and summarized.

Each document received was reviewed and summarized, with information referenced according to the four categories defined above. These summaries are presented at the end of the next chapter in the section, Management and Planning Report Summaries. After all twenty documents were reviewed and summarized, they were examined for similar issues and corresponding vision themes. Ten main visions were identified based on their presence in multiple reports. The vision themes

selected were referenced in a minimum of seven documents. Next goals relating to the visions were compiled. In many cases goals were relevant to more than one vision theme, and thus were included under multiple visions. Lastly strategies presented in the various documents were listed under the goal they were most closely related to.

It is important to note that the focus of this study was on forest resources. As defined in Minnesota statute, forest resources are those natural assets of forest lands, including timber and other forest crops; biological diversity; recreation; fish and wildlife habitat; wilderness; rare and distinctive flora and fauna; air; water; soil; and educational, aesthetic, and historic values. In many of the documents there was an emphasis on agriculture and water resources. Only those references relating to forest resources were summarized and used in developing the landscape perspective.

The ideas portrayed in this report are meant as a preliminary guide for landscape planning and coordination. As implementation and coordination occurs, many of the components present will likely be refined and regrouped as is seen fit.

LANDSCAPE PERSPECTIVE SUMMARY

The management and planning documents that were reviewed and summarized are numbered below. Under each vision theme, documents are referenced based upon their number in this list. The main issues that were emphasized in these documents have been compiled below in random order. The visions, goals, and strategies discussed later relate to these core issues. A comprehensive common theme statement was prepared as a template to provide guidance to agencies and individuals utilizing this report. The statement is merely an example based upon the authors' interpretations of the summarized reports.

DOCUMENTS SUMMARIZED

1. Beyond the Suburbs: A Landowner's Guide to Conservation Management, 2001
2. Blufflands Design Manual Winona County/La Crescent Area Common Visions Project 1998
3. Blufflands/Rochester Plateau Subsection Forest Resource Management Planning, 2001
4. Cannon River Watershed Plan, 1996
5. Comprehensive County Water Management Plans (Fillmore, Goodhue, Houston, Olmsted, Wabasha, Winona counties), 1989-2001
6. Eagle Bluff Environmental Learning Center Strategic Plan, 2001
7. Goodhue County Soil and Water Conservation District 2001 Annual Plan of Work
8. Greenways Initiative in Richard Dorer Hardwood Forest, Letter to Deputy Commissioner of MN DNR, 2000
9. Lewiston Area Forest Resource Management Plan, 1988
10. Lower Mississippi River 2001 Basin Planning Scoping Document
11. Managing Landscapes in the Big Woods Ecosystem
12. Minnesota 2001-2005 Nonpoint Source Management Program Plan, 2001
13. Nerstrand Big Woods State Park Management Plan, 1998
14. A Plan for the Big Woods Project, 1996
15. Prairie-Forest Border Ecoregion: A Conservation Plan
16. Root River Soil and Water Conservation District Comprehensive Plan, 2000
17. Southeastern Minnesota Historic Bluff Country Corridor Management Plan
18. Wells Creek Watershed Partnership Watershed Plan, 1995/1996
19. Whitewater Watershed Forest Resource Diagnostic Report, 1996
20. Whitewater Watershed Project Long-Term Watershed Implementation Plan

ISSUES

1. Forest regeneration
2. Soil erosion and sedimentation
3. Health of aquatic systems (groundwater contamination, surface water quality, wetlands)
4. Native vegetation
5. Loss of riparian vegetation
6. Professional assistance to private landowners
7. Timber stand improvement
8. Habitat loss and fragmentation
9. Development patterns and effect on natural resources
10. Loss of animal, aquatic, and vegetation biodiversity
11. Introduction of exotic species
12. Environmental education
13. Community involvement in conservation activities
14. Management of endangered species

COMMON THEME

Streams, lakes, and wetlands are surrounded by healthy riparian vegetation, dominated by native species. Timber harvest and rural and urban development are restricted close to water resources, thus reducing the potential impact on water quality. Diversity of vegetation and animals is promoted through environmental corridors on public and private land. Wilderness areas, park and trail facilities are managed to support the integrity of natural areas and facilitate public access and recreation.

Cost-share and incentive programs are used to promote forest management and forest regeneration. Professional assistance is readily available to private forest owners for forest management and during forest harvest, in order to optimize private forest resources and fulfill specific forest owner goals.

Community and citizen action groups are active in natural resource management, monitoring, and restoration. Education programs for children and adults promote appreciation and stewardship of the environment.

Natural communities and regionally significant areas have been identified and management objectives have been developed for their sustainability. Best management practices are emphasized in forest management and timber harvest. Education on proper implementation of BMPs is provided to contractors and landowners, and monitoring of their success is performed.

Native species are protected and their populations maintained. Exotic species and invasive diseases are identified and their effects minimized through proper forest management. A GIS of natural and cultural resource information has been developed for the region to guide planning and monitoring activities, and is continually updated. Public agencies, private organizations, and interested individuals correspond often to ensure proper management of forest resources and collaborate to promote the continued health of Southeastern Minnesota's unique environment.

VISIONS, GOALS, AND STRATEGIES

In this section the ten main vision themes are highlighted, followed by numbers of the corresponding documents that dealt with each vision. The visions are presented in order based upon the number of documents that referenced each particular theme, i.e. the first vision was referenced by the greatest number of documents. Below each vision are specific goals from the document summaries that concern this topic. The goals are listed in random order, with specific strategies immediately following each goal. The documents that contained each specific goal are referred to in parenthesis.

1. PROMOTE IMPROVED WATER QUALITY THROUGH ENHANCED RIPARIAN AREAS AND PROPER MANAGEMENT OF SURROUNDING LAND USE

(2,3,4,5,7,10,11,12,13,14,16,18,19)

Goal: Reduce soil erosion and contaminated runoff (2,4,5,7,11)

Strategies

- a) Ensure adequate placement of waste disposal facilities on shore land lots
- b) Implement Overlay Districts to complement unique conditions such as floodplains, shore lands, greenways, scenic areas, etc.
- c) Utilize Geographic Information System (GIS) programs to examine land-use concerns including forest management, ground water quality and susceptibility, farm soil classifications, and changing development patterns
- d) Develop and revise Land Resource Management plans on private and state managed woodlands
- e) Identify areas contributing sediment levels exceeding Total Maximum Daily Loads (TMDLs) proposed by Environmental Protection Agency (EPA)
- f) Utilize stream stabilization methods
- g) Promote use of tree revetment for stream stabilization and alternative stream bank stabilization practices for demonstration projects
- h) Evaluate effectiveness of established stream bank stabilization projects
- i) Expand Whitewater Watershed Project as model for other watersheds needing land treatment to reduce soil erosion and impacts of sediments
- j) Adopt erosion control measures, especially on construction sites
- k) Target eroding areas for restoration

Goal: Minimize forest management impacts on aquatic resources and riparian areas, particularly during and after harvest (3,11,12)

Strategies

- a) Consider possible negative impacts in riparian areas due to harvest activity during initial planning
- b) Plant permanent vegetative filter strips near water resources
- c) Use Best Management Practices (BMPs) to address pollution from each land use
- d) Adopt erosion control measures, especially on construction sites
- e) Evaluate effectiveness of filter strips in reducing sediment movement to water bodies and wetlands
- f) Initiate long term research to determine effectiveness of Resource Management Zone (RMZ) configurations for: thermal impacts, trapping sediments, capturing or trapping nutrients, providing critical habitats
- g) Evaluate soil disturbance impacts and recovery rates for erosion and channelization, infiltration, hydrologic regimes, and site productivity

Goal: Increase and monitor implementation of local ordinances and permitting procedures focusing on reducing erosion and runoff (4,5,10,12,18)

Strategies

- a) Identify areas contributing sediment levels exceeding TMDLs proposed by EPA
- b) Develop county land use ordinances to protect existing areas with natural vegetation
- c) Encourage citizen/partner involvement in water monitoring activities
- d) Identify Wells Creek Partnership in local water plan
- e) Support adoption of erosion control and feedlot ordinances in counties

Goal: Increase use of forested land in water resource protection (riparian areas, buffer strips, shore lands, recharge management); utilize available programs and agencies where available (RIM, DNR, Fisheries, others) (5,7,13,14,16,18,19)

Strategies

- a) Utilize stream stabilization methods
- b) Cooperate with local watershed groups in land forest management
- c) Identify areas well-suited for enrollment in Conservation Reserve Program (CRP) and Reinvest In Minnesota (RIM) programs
- d) Establish vegetative buffer strips along streams
- e) Expand Citizen Stream Monitoring Program in Root River and Upper Iowa River watersheds to establish baseline information and long term water quality data
- f) Emphasize state cost-share programs based upon soil erosion and water quality impacts
- g) Prepare document that outlines procedures for evaluating stream corridors to determine best possible treatment of riparian zones
- h) Prepare workshop to train service providers how to evaluate riparian areas
- i) Examine existing research on grazing in stream corridors and effects of grassed buffers on stream riparian areas
- j) Retain rip-rap along Prairie Creek to prevent erosion of Minnesota dwarf trout lily colonies along stream
- k) Implement vegetative filter strips along stream banks, springs and rivers; encourage enrollment into RIM, encourage buffers
- l) Participate in at least one project annually that promotes stream protection and use as a tool to promote these practices
- m) Establish effective buffer strips on slopes, woodlands, uplands
- n) Examine stream corridor segments individually to assess best management projects
- o) Develop concept of watershed wellness log to chart improvement
- p) Support use of high value hardwoods or horticultural species as riparian buffers
- q) Develop state, county and city parks, scientific and natural areas, Wildlife Management Areas (WMAs), etc. in appropriate areas
- r) Protect woodlands, bluffs and other natural areas through ordinances

Goal: Map and identify areas within counties where perennial vegetation and riparian buffers exist or are needed (4,10,18)

Strategies

- a) Work with counties to obtain GIS data layers necessary to accomplish buffer needs assessment
- b) Collect information on land use distribution within the e watershed (i.e. area currently grazed, under cultivation, pasture lands, feedlot location) and hydrology (stream flow, infiltration, run-off, flood plain corridor, "ideal" channel characteristics)
- c) Establish monitoring system to evaluate changing conditions within the watershed

Goal: Create awareness among public of water quality and other resource benefits of vegetative riparian buffers in rural and urban settings (4,5,7,10)

Strategies

- a) Expand Citizen Stream Monitoring Program in Root River and Upper Iowa River watersheds to establish baseline information and long term water data
- b) Cooperate with local watershed groups in land forest management
- c) Provide assistance to watershed groups/alliances in planning and implementing watershed based approach to natural resource management
- d) Prepare workshop to train service providers how to evaluate riparian areas
- e) Prepare document that outlines procedures for evaluating stream corridors to determine best possible treatment of riparian zones
- f) Develop rural and urban landowner handbooks for county residents that include riparian buffer opportunities and programs
- g) Develop information media campaigns incorporating local and regional media outlets
- h) Update fact sheets outlining various types of buffers and their benefits
- i) Encourage non-governmental organization (NGO) participation in promotion of buffer implementation
- j) Use city community education and recreation programs to focus on city creeks and acquaint people with the value of local water resources
- k) Provide information on shore land management to landowners
- l) Involve citizens and schools in monitoring

Goal: Increase monitoring of BMP implementation (11,12,16,18,19)

Strategies

- a) Use BMPs in harvesting, thinning, and planting to control erosion and protect waters
- b) Use BMPs to address pollution from each land use
- c) Continue guideline implementation monitoring
- d) Adequately sample critical activities
- e) Identify meaningful sampling criteria
- f) Establish streamline on-site evaluations
- g) Encourage landowners to protect wetlands and stream banks using BMPs

2. PROMOTE DEVELOPMENT OF HABITAT CORRIDORS; PREVENT FRAGMENTATION OF HABITAT

(2,4,5,7,8,10,11,13,14,15,18)

Goal: Limit development within environmental corridors to promote biodiversity (2,15)

Strategies

- a) Retain natural vegetation during residential development of rural areas
- b) Provide government funds to managers of greenway corridors for maintenance
- c) Adjust current zoning regulations to maintain agricultural and natural land, retain urban-rural landscape boundaries, and promote stability of land uses
- d) Develop environmental corridors to protect sensitive lands, biodiversity, and community resources
- e) Advocate for state-wide or regional funding for land acquisition and tax incentive programs for landowners who take appropriate steps to conserve their property
- f) Collaborate with local governments and conservation organizations to develop sound land use plans

Goal: Minimize urban sprawl by incorporating traditional development patterns (2,4)

Strategies

- a) Adjust current zoning regulations to maintain agricultural and natural land, retain urban-rural landscape boundaries, and promote stability of land uses
- b) Consult professional naturalist prior to rural residential development
- c) Examine alternative development models such as Open Space Development Design
- d) Support use of conservation overlay districts, park designation, and other mechanisms to protect greenways

Goal: Increase use of woodland areas in water resource protection (riparian corridors, shore lands, and recharge management areas) for conserving biodiversity (4,5,11)

Strategies

- a) Utilize stream stabilization methods
- b) Discourage stream straightening
- c) Use BMPs in harvesting, thinning, and planting to control erosion and protect waters
- d) Promote BMPs through stand erosion control and stream buffering

Goal: Increase protection of fragile and scenic corridors and establishment of buffer strips along streams through RIM, DNR, Fisheries, and others (4,5)

Strategies

- a) Establish vegetative buffer strips along streams
- b) Identify areas well-suited for enrollment in CRP and RIM programs
- c) Direct CRP to riparian areas

Goal: Establish wildlife corridors to connect public land (8)

Goal: Map and identify areas within counties where perennial vegetation and riparian buffers exist or are needed (4,10,18)

Strategies

Goal: Stated above on page 8

Goal: Protect existing natural vegetation bordering major streams, tributaries, lakes, wetlands or sensitive groundwater recharge areas (4,10)

Strategies

- a) Consult landowners concerning permanent easement programs such as Reinvest in Minnesota (RIM). Pursue funding through appropriate agencies and NGOs; support full-time position within the basin to encourage landowner enrollment in these programs
- b) Study impacts of livestock in riparian corridors
- c) Develop county land use ordinances to protect existing areas with natural vegetation
- d) Prepare document that outlines procedures for evaluating stream corridors to determine best possible treatment of riparian zones
- e) Prepare workshop to train service providers how to evaluate riparian areas
- f) Use shore land buffers in parks
- g) Target buffer strip plantings to waterways with severe erosion
- h) Encourage planning for greenways and shore lands in cities
- i) Support buffer strip planting, livestock fencing and managed grazing projects on shore lands
- j) Target headwater tributaries and shore lands for buffer planting/maintenance
- k) Finance controlled grazing projects and fencing along shore lands where appropriate

Goal: Increase stream miles with riparian buffers at least 50 feet wide bordering protected waters (10)

Goal: Create awareness among public of water quality and other resource benefits of vegetative riparian buffers in rural and urban settings (4,5,7,10)

Strategies

Goal: Stated above on page 9

Goal: Protect, restore and enhance a variety of wetland habitats (4,11)

Strategies

- a) Plug drainage ditches and tiles to restore drained wetlands; build earthen dikes to impound water
- b) Keep livestock out of wetland areas to improve habitat value
- c) Have private landowners apply for financial and technical assistance to protect, enhance, or restore wetlands
- d) Limit use of fertilizers, pesticides, and herbicides on all land
- e) Become partner with Wetlands Initiative in effort to restore Straight River Marsh in Steele County
- f) Follow up on wetland prioritization by gathering data and identifying ways to prioritize minor watersheds for wetland protection and restoration
- g) Study effectiveness of existing wetland restoration, creation, and preservation
- h) Continue to work with the Department of Natural Resources (DNR) and sportsmen's clubs to fund planned wetland acquisition projects

Goals: Protect rare species and enhance their habitats (11,13)

Strategies

- a) Emphasize native plant species that provide food and shelter for wildlife
- b) Use native plants in home landscaping, being careful to avoid problem species
- c) Implement plan to protect and maintain rare species or habitats on private property
- d) Perform site-specific searches in areas proposed for development for endangered, threatened and special concern species
- e) Monitor impacts of visitor use on listed species

- f) Prohibit new development within areas of potential habitat of Minnesota dwarf trout lily without thorough search for populations
- g) Diminish sheet erosion associated with the main campground that lies upslope of main population of trout lily
- h) Retain rip-rap along Prairie Creek to prevent erosion of Minnesota dwarf trout lily colonies along stream

Goals: Promote ecosystem level stewardship planning to protect and enhance regionally significant areas (11,15)

Strategies

- a) Bring ecosystem considerations into zoning ordinances
- b) Identify and work for public purchase of threatened remnants and other important habitats
- c) Consider bonding as way to preserve natural resource areas
- d) Pursue multi-state funding opportunities for conservation work
- e) Advocate and find funding for improved restoration and management of public lands
- f) Develop a template for restoration to use in education and outreach
- g) Educate local land managers and public officials about the need for restoration and about appropriate restoration techniques

Goal: Improve and maintain trails and park facilities to support ecological goals; utilize native vegetation and plantings in construction and improvements (4,13)

Strategies

- a) Design plan to reduce soil compaction in heavily used areas of the park
- b) Plant native trees and shrubs in campground and picnic area to maintain shade and forest canopy
- c) Plant native trees in parks
- d) Improve park design so it contributes to restoration
- e) Work with park boards and other public agencies to encourage protection and expansion of natural areas
- f) Plan park systems around environmental resources
- g) Support Cannon Link Trail, Cannon Valley Trail, Sakatah Singing Hills Trail

Goal: Maintain and improve riparian vegetation and management (4,18)

Strategies

- a) Establish effective buffer strips on slopes, woodlands, uplands
- b) Examine stream corridor segments individually to assess best management projects
- c) Promote BMPs (stand erosion control and stream buffering)
- d) Develop concept of watershed wellness log to chart improvement
- e) Manage woody cover and re-vegetate stream banks
- f) Remove livestock from streambanks and lakeshores
- g) Finance buffer strips using native vegetation
- h) Include buffer strips in conservation plans
- i) Direct CRP to riparian areas
- j) Make greenway corridors a priority for research and outreach to local governments
- k) Encourage planning for greenways and shore lands in cities
- l) Use shore land buffers in parks
- m) Support buffer strip planting, livestock fencing and managed grazing projects on shore lands
- n) Target buffer strip plantings to waterways with severe erosion
- o) Target headwater tributaries and shore lands for buffer planting/maintenance

Goal: Manage stream and surrounding areas to reduce temperature, maintain diverse channel, and restore stable banks and permanent flow (18)

Strategies

- a) Manage woody cover and re-vegetate stream banks
- b) Limit or improve cattle crossings
- c) Implement rotational grazing and grazing corridors

Goal: Increase vegetation in erosion-prone areas (4,18)

Strategies

- a) Target eroding areas for restoration
- b) Target buffer strip plantings to waterways with severe erosion
- c) Support adoption of erosion control ordinances in counties

3. CONSERVE BIODIVERSITY (2,3,4,5,9,11,13,14,15,18)

Goal: Limit development within environmental corridors to promote biodiversity (2,4)

Strategies

- e) Retain natural vegetation during residential development of rural areas
- f) Provide government funds to managers of greenway corridors for maintenance
- g) Adjust current zoning regulations to maintain agricultural and natural land, retain urban-rural landscape boundaries, and promote stability of land uses
- h) Develop environmental corridors to protect sensitive lands, biodiversity, and community resources
- i) Use clustering to protect areas with unique resources
- j) Plan park systems around environmental resources
- k) Keep development and services out of environmentally sensitive areas

Goal: Remove and prevent introduction of problem species and disease (3,5,11,15)

Strategies

- a) Consider treatment for 100+ oak stands because of potential for gypsy moth impact
- b) Improve vigor of stand by removal of diseased trees
- c) Identify locations of exotics to reduce potential spread
- d) Determine harvest size based upon desired conditions of forest resource and considerations for wildlife species
- e) Emphasize native plant species that provide food and shelter for wildlife
- f) Use native plants in home landscaping, being careful to avoid problem species
- g) Pursue funding for and emphasize exotic control as a management tool on public and private lands
- h) Research biological control of garlic mustard
- i) Develop communications strategy for sharing successful control methods

Goal: Increase woodland areas in water resource protection (riparian corridors, shore lands, and recharge management areas) for conserving biodiversity (4,5,11)

Strategies

Goal: Stated above on page 10

Goal: Identify, inventory, and manage rare resources and ecologically significant features (4,9)

Strategies

- a) Develop private forest management plans for landowners interested in wildlife management
- b) Curtail type conversion or establishment of pine in prairies and oak savanna
- c) Manage prairies by prescribed burning
- d) Designate and cooperatively manage scientific management areas
- e) Plan park systems around environmental resources

Goal: Improve quality and quantity of broad range of forest benefits in existing forests (11)

Strategies

- a) Develop Forest Stewardship plan for private forest landowners
- b) Use BMPs in harvesting, thinning, and planting to control erosion and protect waters
- c) Manage forests for multiple species
- d) Maintain diversity of forest types and age classes

- e) Obtain native planting stock through DNR nurseries, Soil and Water Conservation Districts, parks, and local nurseries

Goal: Protect, restore and enhance a variety of wetland habitats (4,11)

Strategies

Goal: Stated above on page 11

Goal: Conserve native plants and animals (4,11,13,14,15,18)

Strategies

- a) Employ conservation and environmental farming practices
- b) Develop plan to protect and enhance habitat value of each component
- c) Emphasize native plant species that provide food and shelter for wildlife
- d) Use native plants in home landscaping, being careful to avoid problem species
- e) Promote economic activities and lifestyles compatible with natural areas and native plants and animals
- f) Maintain old growth forest
- g) Restore and maintain mix of hardwoods, oak savanna, and prairie
- h) Make prairie seed and planting instructions available at low cost
- i) Plant native vegetation along road right-of-ways and drainage ditches
- j) Finance buffer strips using native vegetation
- k) Make native trees available for planting on private land
- l) Plant native trees in parks
- m) Publicize availability and advantages of native vegetation
- n) Establish native seed farms for use in restoration

Goal: Protect rare species and enhance their habitats (11,13)

Strategies

Goal: Stated above on page 11

Goal: Maintain and improve riparian vegetation and management (4,18)

Strategies

Goal: Stated above on page 12

Goal: Develop and maintain database and GIS of natural and cultural resource information to guide planning and monitoring activities (13)

Strategies

- a) Map and maintain database of all restorative and tree planting projects. Monitor site performance, seedling survival, erosion control, seed bank response, and forest growth
- b) Map and inventory existing plants and concentration of native plants worthy of protection
- c) Map and maintain database of noxious weed populations
- d) Complete inventory of biological features
- e) Develop and monitor biological indicators of ecosystem health
- f) Develop Ecological Classification System (ECS)

**4. PROVIDE TECHNICAL ASSISTANCE FOR PRIVATE FOREST LANDOWNERS TO
ENSURE PROPER MANAGEMENT**
(1,4,5,7,9,10,12,18,19,20)

Goal: Increase consultations with professional foresters for forest harvesting and forest management on private land *(1,10,19,20)*

Strategies

- a) Develop plan to help landowners blend natural and physical characteristics of land with their interests and objectives
- b) Provide information regarding forest management, harvest and marketing to private forest landowners
- c) Seek funding sources to allow technical assistance to landowners
- d) Promote oak regeneration on private land
- e) Provide technical assistance to private landowners to evaluate practices and measure progress

Goal: Expand educational programs for contractors and landowners regarding erosion control practices on construction and development projects *(5,12,18)*

Strategies

- a) Present educational programs and demonstrations on erosion control practices
- b) Encourage landowners to consult with state and federal agencies [Natural Resources Conservation Services (NRCS), Soil and Water Conservation Districts (SWCD)] when installing conservation practices
- c) Conduct woodland tours to promote wise conservation management and inform how land management practices affect surface waters
- d) Develop demonstrations of practices and equipment to reduce impacts and improve efficiency and cost effectiveness of forest operations
- e) Continue training programs for loggers and foresters and expand to include other natural resource professionals
- f) Establish program to recognize logger, natural resource managers, and management agencies that successfully implement guidelines
- g) Schedule tours and provide information, both technical and financial, through catalogue of programs and newsletter
- h) Utilize forest stewardship planning to provide technical assistance and financial incentives

Goal: Increase technical assistance and support to private woodland owners for implementation of BMPs and other conservation practices *(5,7,9,12,18)*

Strategies

- a) Encourage landowners to consult with state and federal agencies (NRCS, SWCD) when installing conservation practices
- b) Conduct woodland tours to promote wise conservation management and inform how land management practices affect surface waters
- c) Use GIS program and other computerized soil information to assist County staff and landowners in conservation and land use planning
- d) Identify land cover types, land use, and ownership data and incorporate into county GIS system
- e) Feature landowners in news releases who implement BMPs on their land
- f) Develop private forest management plans for landowners interested in wildlife management
- g) Evaluate implementation and educational success through field implementation monitoring

- h) Develop curriculum for local conditions to inform private owners about BMPs
- i) Survey landowners to determine effectiveness of guideline education programs

Goal: Promote, administer and provide technical assistance to landowners on state and federal cost-share programs (7)

Strategies

- a) Inform and assist landowners on cost-share practices and funding; provide technical assistance to interested landowners
- b) Emphasize state cost-share programs based upon soil erosion and water quality impacts
- c) Provide on-site assistance for design and construction of conservation practices applied under cost-share programs
- d) Complete needs on Environmental Quality Improvement Program (EQIP) referrals for conservation practices

Goal: Promote and provide technical assistance to landowners with land under long-term retirement (7)

Strategies

- a) Process and develop conservation plans for RIM and CRP participants; promote continuation of programs and assist landowners with expiring CRP contracts
- b) Develop methods for enhancing RIM and Permanent Wetland Preserves (PWP) easements by promoting diversity in plant cover
- c) Promote and assist interested landowners in USDA/NRCS programs (i.e. Wildlife Habitat Improvement Program (WHIP), Wetland Reserve Program)

Goal: Increase technical assistance to private landowners applying forestry practices through available programs and agency partnerships (4,7)

Strategies

- a) Administer District Tree Program, including plan and design for windbreaks and tree sales
- b) Provide services including tree mats, tree fertilizer packs and forbs seed
- c) Assist and provide financial support through Forestry Stewardship Program to implement project grant work plan with DNR Forester
- d) Promote and assist Stewardship Incentive Program and other forestry programs
- e) Employ Forest Stewardship Ecologist to consult with private woodland owners

Goal: Expand technical assistance to landowners on stream bank stabilization using bioengineering techniques (7)

Strategies

- a) Promote use of tree revetment for stream stabilization and alternative stream bank stabilization practices for demonstration purposes
- b) Evaluate effectiveness of established stream bank stabilization projects

Goal: Provide technical resources to individuals and organizations regarding planning and monitoring good prescribed grazing systems (10,18)

Strategies

- a) Study impacts of livestock in riparian corridors
- b) Develop grazing systems planning guidebook
- c) Develop evaluation program that updates acreage of permanent vegetative cover and riparian buffers on an annual basis
- d) Examine economics and mechanics of rotational grazing systems and availability of cost-share funds

5. PROMOTE INCENTIVE PROGRAMS (2,4,5,7,10,12,15,16,18,20)

Goal: Increase implementation of local ordinances and permitting procedures that focus on reducing erosion and runoff (4,5)

Strategies

- a) Support adoption of erosion control and ordinances in counties

Goal: Enhance effectiveness of state and federal conservation programs (5,7)

Strategies

- a) Use GIS program and other computerized soil information to assist County staff and landowners in conservation and land use planning
- b) Identify land cover types, land use, and ownership data and incorporate into county GIS system
- c) Identify areas well-suited for enrollment in CRP and RIM programs
- d) Develop methods for enhancing RIM and PWP easements by promoting diversity in plant cover

Goal: Promote and provide technical assistance to landowners involved with state, federal and other available conservation programs and agency partnerships (7,10,12,15,16)

Strategies

- a) Inform and assist landowners on cost-share practices and funding; provide technical assistance to interested landowners
- b) Emphasize state cost-share programs based upon soil erosion and water quality impacts
- c) Provide on-site assistance for design and construction of conservation practices applied under cost-share programs
- d) Complete needs on EQIP referrals for conservation practices
- e) Process and develop conservation plans for RIM and CRP participants; promote continuation of programs and assist landowners with expiring CRP contracts
- f) Administer District Tree Program, including planning and design of windbreaks and tree sales
- g) Assist and provide financial support through Forestry Stewardship Program to implement project grant work plan with DNR Forester
- h) Promote and assist Stewardship Incentive Program and other forestry programs
- i) Promote use of tree revetment for stream stabilization and alternative stream bank stabilization practices for demonstration purposes
- j) Evaluate effectiveness of established stream bank stabilization projects
- k) Assist agriculture producers, county residents, and units of government on wetland protection programs and implementation of Wetland Conservation Act
- l) Encourage cost share on private timber sales to obtain adequate regeneration, especially of oak
- m) Encourage cost share for establishment of forests and protection against pests
- n) Consult with landowners concerning permanent easement programs such as Reinvest in Minnesota (RIM). Pursue funding through appropriate agencies and NGOs; support full-time position within the basin to encourage landowner enrollment in these programs
- o) Pursue avenues of conservation tax credit for permanent conservation easements, shore land and other types of buffers
- p) Seek funding sources to provide incentives for riparian areas

- q) Promote easement programs or tax incentives for converting riparian cropland to forest cover
- r) Assist in development of wildlife habitat areas that would qualify for annual Farm Service Agency (FSA) setaside acres
- s) Cost share on upland wildlife habitat
- t) Identify and mobilize programs for compensation of land taken out of production
- u) Advocate for state-wide or regional funding for land acquisition and tax incentive programs for landowners who take appropriate steps to conserve their property
- v) Collaborate with local governments and conservation organizations to develop sound land use plans
- w) Advocate for funding for Environmental Quality Improvement Program (EQIP), Wildlife Habitat Improvement Program (WHIP), Conservation Reserve Program (CRP), and Conservation Reserve Enhancement Program (CREP)
- x) Find Federal funds for Natural Heritage programs to use in advising management/conservation programs
- y) Partner with Minnesota Department of Transportation (MNDOT) on right-of-way management
- z) Work with United States Fish and Wildlife Service (USFWS) on management of refuges along Mississippi River
- aa) Share results of ecoregional planning with state fisheries staff

Goal: Provide technical assistance to private landowners (7,10,18,20)

Strategies

- a) Provide services including tree mats, tree fertilizer packs and forbs seed
- b) Encourage cost share on private timber sales
- c) Provide forest management assistance and incentives to landowners for sustainable harvest systems
- d) Encourage cost sharing of pre- and post- sale treatments for private timber sales to promote forest regeneration

6. ENCOURAGE COMMUNITY INVOLVEMENT IN NATURAL RESOURCE MANAGEMENT
(2,4,6,7,8,10,13,15,18)

Goal: Promote appreciation and stewardship of natural resources through enriching programs for participants at Eagle Bluff (6)

Strategies

- a) Integrate sustainable agriculture and other sustainable systems into education program
- b) Develop adult educational opportunities

Goal: Promote SWCD activities and programs in the community (7)

Strategies

- a) Provide SWCD representation at Cannon River Watershed Partnership Board and Cannon River Joint Power Board meetings
- b) Provide assistance to watershed groups/alliances in planning and implementing watershed based approach to natural resource management
- c) Emphasize conservation planning and implementation in targeted sub-watershed of Little Cannon River, Prairie Creek, and Wells Creek
- d) Provide monthly news releases regarding SWCD's programs and activities
- e) Feature landowners in news releases who implement BMPs on their land
- f) Submit articles to Watershed newsletters
- g) Explore opportunities to display information on current resource issues at business locations and/or community functions
- h) Give presentations to civic organizations upon request
- i) Promote environmental education in schools through contracts, library and curriculum resources
- j) Sponsor and conduct annual 6th grade conservation day
- k) Promote and encourage county churches to observe Soil and Water Stewardship Week
- l) Coordinate actions with local, state, and federal government units in addressing soil and water resource concerns
- m) Assist organizations that have common objectives with the SWCD program
- n) Distribute information to increase awareness and understanding of how daily activities impact natural resources
- o) Recognize local residents who practice land and water stewardship

Goal: Promote local support, involvement and leadership in Richard Dorer Hardwood Memorial Forest (8)

Strategies

- a) Reach agreement between private landowners on use of lands for wildlife corridor
- b) Involve local and state hunting and fishing groups
- c) Provide tax breaks for landowners

Goal: Encourage citizen/partner involvement in water monitoring activities (4,10)

Strategies

- a) Use city community education and recreation programs to focus on city creeks and acquaint people with the value of local water resources
- b) Use monitoring to build the community and create social pressure to help improve the watershed
- c) Involve citizens and schools in monitoring
- d) Support Clean Watershed Partnership projects

Goal: Increase level of understanding of cultural and environmental issues (4,13,15)

Strategies

- a) Develop partnership between park and area schools
- b) Establish active Big Woods Stewardship group
- c) Incorporate concepts of biodiversity, ecosystem management and watershed/landscape management into park interpretive programs and displays
- d) Support and participate in efforts of Big Woods Project, Ecological Indicators Initiative, and other cooperative opportunities
- e) Educate residents about natural communities in subwatersheds
- f) Invite landowners to meetings and demonstration projects focusing on shore lands
- g) Find Federal funds for Natural Heritage programs to use in advising management/conservation programs
- h) Develop communications strategy for sharing successful control methods
- i) Public education on need for prescribed burns
- j) Develop a template for restoration to use in education and outreach
- k) Educate local land managers and public officials about the need for restoration and about appropriate restoration techniques
- l) Build a relationship with the Army Corps of Engineers
- m) Work with USFWS on management of refuges along Mississippi River
- n) Share results of ecoregional planning with state fisheries staff

Goal: Provide educational opportunities and distribute information (4,18)

Strategies

- a) Develop tree buying cooperative
- b) Schedule tours and provide information, both technical and financial, through catalogue of programs and newsletter
- c) Hold public informational and educational meetings
- d) Share information with townships and use them as resource to distribute information
- e) Form a Sustainable Farming Association in Wells Creek
- f) Examine economics and mechanics of rotational grazing systems and availability of cost share funds
- g) Make information available on natural landscaping
- h) Use city community education and recreation programs to focus on city creeks and acquaint people with the value of local water resources
- i) Provide information on shore land management to landowners
- j) Invite landowners to meetings and demonstration projects focusing on shore lands
- k) Provide shore land information to all lakeshore residents on Fox, Circle, and Mazaska lakes
- l) Support education on conservation and sustainable agriculture by the Land Stewardship Project, RC & D, Extension Service, and other organizations
- m) Support education of contractors, landscapers, etc on working around natural features
- n) Co-sponsor events or send brochures for other organizations/ events to appropriate recipients in the watershed
- o) Present slide shows to local organizations
- p) Hold neighborhood meetings
- q) Fund demonstration projects
- r) Organize tours and field trips
- s) Use conferences, presentations, media to publicize monitoring results

Goal: Explore existing assistance programs that can aid in achieving partnership goals (18)

Strategies

- a) Examine economics and mechanics of rotational grazing systems and availability of cost share funds
- b) Identify and mobilize programs for compensation of land taken out of production

Goal: Participate in county planning, zoning and local water planning (4,18)

Strategies

- a) Utilize zoning and permitting to maintain natural habitats
- b) Plan development on bluff lands and other sensitive areas carefully to maintain rural character of region
- c) Identify Wells Creek Partnership in local water plan
- d) Work with park boards and other public agencies to encourage protection and expansion of natural areas
- e) Become a partner with Wetlands Initiative in an effort to restore the Straight River Marsh in Steele County
- f) Provide information about cluster development, greenway protection, and other options for local governments
- g) Support adoption of erosion control and feedlot ordinances in counties

7. PROVIDE ENVIRONMENTAL EDUCATION (4,6,7,12,13,15,17,18,20)

Goal: Improve environmental learning center curriculum that emphasizes outdoor experiential learning and recreation (6)

Strategies

- a) Complete implementation of high quality interpretive signs on all trails
- b) Establish and maintain Brightsdale Management Unit as model for ecosystem management
- c) Expand and enhance relationships with day-use nature centers and regional community education programs

Goal: Provide educational programs to residents and visitors to promote awareness and protection of natural resources (4,6,12,13,15,17,18)

Strategies

- a) Integrate sustainable agriculture and other sustainable systems into education programs at Eagle Bluff Environmental Learning Center
- b) Develop adult educational opportunities at Eagle Bluff Environmental Learning Center
- c) Develop early education curriculum in cooperation with professional associations (i.e. Project Wet, Project Wild, Project Learning Tree, Natural Resources in the Classroom)
- d) Develop partnership between park and area schools
- e) Establish active Big Woods Stewardship group
- f) Incorporate concepts of biodiversity, ecosystem management, and watershed/landscape management into Nerstrand Big Woods State Park interpretive programs and displays
- g) Install interpretive signs along Historic Bluff Country Corridor explaining unique natural features
- h) Provide trail signs and guided tours in Richard J. Dorer Memorial Hardwood Forest to inform visitors about natural flora and fauna
- i) Inform visitors of Mounds Prairie State Natural Area about native prairie restorative process
- j) Enhance Harmony-Preston Valley State Trail by providing interpretive information at trailheads
- k) Coordinate with Eagle Bluff Environmental Learning Center and Houston Nature Center in providing natural resource information
- l) Identify and preserve important natural resources with Heritage Preservation Commissions (HPCs)
- m) Schedule tours and provide information, both technical and financial, through catalogue of programs and newsletter
- n) Hold public informational and educational meetings
- o) Share information with townships and use them as resource to distribute information
- p) Present slide shows to local organizations
- q) Fund demonstration projects
- r) Organize tours and field trips
- s) Use conferences, presentations, media to publicize monitoring results
- t) Educate landowners and encourage use of easements, purchase, lease, waiver of property tax, tax credits, heritage registry, etc. for land in conservation (prairies, wetlands, forests)

Goal: Provide SWCD activities and programs in the community (7)

Strategies

Goal: Stated above on page 20

Goal: Increase use of BMPs through effective education programs (12)

Strategies

- a) Develop curriculum for local conditions to inform private forest owners about BMPs
- b) Survey landowners to determine effectiveness of guideline education programs
- c) Develop demonstrations of practices and equipment to reduce impacts and improve efficiency and cost effectiveness of forest operations
- d) Continue training programs for loggers and foresters and expand to include other natural resource professionals
- e) Establish program to recognize logger, natural resource managers and management agencies that successfully implement guidelines

8. PROMOTE REGENERATION OF FORESTLANDS

(1,4,5,10,12,13,18,19,20)

Goal: Utilize natural and artificial methods to promote forest regeneration (1,10,18,20)

Strategies

- a) Generate plan based upon present use of forested land, resource inventory, and future forest management objectives
- b) Encourage cost share for establishment of forests and protection against pests
- c) Develop tree buying cooperative
- d) Utilize forest stewardship planning to provide technical assistance and financial incentives
- e) Develop local nursery for Wells Creek to assure appropriate and available species
- f) Sponsor distribution system of diverse tree species and sizes
- g) Provide forest management assistance and incentives to landowners for sustainable harvest systems
- h) Promote planting of trees and shrubs to revitalize poor quality timber stands

Goal: Increase restoration of natural vegetation on marginal agricultural land and riparian areas through available programs (4,5,10,12,13,18,19,20)

Strategies

- a) Identify areas well-suited for enrollment in CRP and RIM programs
- b) Expand forests to land that experiences sheet and rill erosion, and land that has been voluntarily taken out of production (example: RIM and CRP land)
- c) Support tree planting for windbreaks, shelterbelts, as buffer areas between floodplains and agricultural land, gully heads as well as around springs, sinkholes, and headwater areas
- d) Utilize native species and hybrid varieties of trees to restore riparian forest cover to 2000 to 6000 acres per year
- e) Promote easement programs/tax incentives for converting riparian cropland to forest cover
- f) Restore and maintain mix of hardwoods, oak savanna, and prairie
- g) Establish buffer strips on slopes, woodlands, uplands
- h) Revegetate stream banks
- i) Convert marginal cropland or pastures to oak savanna
- j) Direct CRP to riparian areas
- k) Support buffer strip planting, livestock fencing along shore lands where appropriate
- l) Promote CRP position

Goal: Increase natural communities and native species populations (4,12,13,19,20)

Strategies

- a) Finance buffer strips using native vegetation
- b) Make prairie seed and planting instructions available at low cost
- c) Plant native vegetation along road right-of-ways and drainage ditches
- d) Make native trees available for planting on private land
- e) Plant native trees in parks
- f) Publicize availability and advantages of native vegetation
- g) Utilize native species and hybrid varieties of trees to restore riparian forest cover to 2000 to 6000 acres per year
- h) Maintain old growth forest
- i) Restore and maintain mix of hardwoods, oak savanna, and prairie
- j) Promote oak regeneration
- k) Promote oak forest management for wildlife habitat

9. PROMOTE TIMBER STAND IMPROVEMENT, NOTABLY REGENERATION AND FOREST HEALTH
(1,3,4,9,10,11,19,20)

Goal: Increase diversity of wood lot and benefits of wood lot to promote stand health
(1,3,4,11)

Strategies

- a) Encourage use of native vegetation species and discourage invasive species
- b) Remove trees susceptible to disease
- c) Avoid wounding trees when working in forest
- d) Discourage bark beetle populations by clearing woodpiles adjacent to live trees, particularly in spring and summer
- e) Restrict pruning of oak trees in spring and summer to prevent spread of oak wilt
- f) Develop forest stewardship plan for private forest landowners
- g) Manage forests for multiple species
- h) Maintain diversity of forest types and age classes
- i) Develop holistic view of local forest resources; it's relations to neighboring and regional forests
- j) Plant native trees in parks
- k) Make native trees available for planting on private land
- l) Publicize availability and advantages of native vegetation
- m) Promote white pine along riparian corridors and where exists as component of other cover types
- n) Review stands individually to determine frequency of harvest based upon stand specific conditions
- o) Identify secondary and tertiary white pine communities during stand selection
- p) Determine harvest size based upon desired conditions of forest resources and considerations for wildlife species

Goal: Increase forest regeneration/amount of forested area *(1,10,11,20)*

Strategies

- a) Generate plan based upon present use of forested land, resource inventory, and future forest management objectives
- b) Expand forests to land that experiences sheet and rill erosion, and land that has been voluntarily taken out of production (example: RIM and CRP)
- c) Suggest tree planting for windbreaks, shelterbelts, as buffer areas between floodplains and agricultural land, gully heads as well as around springs, sinkholes, and headwater areas
- d) Encourage cost share for establishment of forests and protection against pests
- e) Retain all existing forest land; prevent conversion to nonforest uses
- f) Contact forester to develop restoration plan to include site selection and preparation, species selection, and maintenance
- g) Obtain native planting stock through DNR nurseries, Soil and Water Conservation Districts, parks, and local nurseries
- h) Identify dry soil, steep slopes, roadsides, stream sides and uplands adjacent to wetlands as potential sites for restoration
- i) Promote woodland establishment in areas voluntarily removed from production due to erosion problems such as land enrolled in RIM and CRP

Goal: Maintain oak and hardwood cover types; minimize conversion of oak to hardwoods (3,19,20)

Strategies

- a) Establish allowable cut calculations for oak in each age class
- b) Introduce large scale and repetitive prescribed burns to regenerate oak
- c) Salvage oak stands greater than 80 years of age that are damaged by natural disaster
- d) Share information and techniques on oak management
- e) Reduce risk gypsy moth establishment
- f) Plant non-forested and de-forested areas with hardwood cover types
- g) Support use high value hardwoods or horticultural species as riparian buffers
- h) Encourage cost sharing of pre-and post-sale treatments for private timber sales to promote regeneration
- i) Educate landowners on oak regeneration techniques
- j) Promote oak forest management for wildlife habitat and overall quality of forest resource

Goal: Increase use of appropriate harvest techniques (9,10,11)

Strategies

- a) Establish consumer scale agreements with timber processing industries which use state sold wood
- b) Create rating system of basin loggers and distribute results to woodland owners. Ratings would be based on BMPs used in timber harvests already completed in area
- c) Develop Forest Stewardship Plans that recognize utility and limitations of forest resources, and match biological diversity with soil type, climate and regeneration rates. Plans should include disease and pest control measures and means of controlling undesirable species
- d) Encourage use of cost share on private timber sales to obtain adequate regeneration, especially of oak
- e) Educate wood lot owners on proper timber harvesting techniques
- f) Use BMPs in harvesting, thinning, and planting to control erosion and protect waters

Goal: Increase use of forester-assisted private timber harvest (10,19,20)

Strategies

- a) Seek funding sources to allow technical assistance to landowners
- b) Provide technical assistance to private landowners to evaluate practices and measure progress

Goal: Increase compliance rate of BMPs (19,20)

Strategies

- a) Support use of high value hardwoods or horticultural species as riparian buffers
- b) Intensify audit procedure to evaluate success of current BMP implementation, especially those pertaining to roads
- c) Estimate timber quantities harvested in areas where BMPs are being applied
- d) Increase adherence of BMPs for roads in forested areas
- e) Evaluate variety of BMPs (feedlot, manure, field erosion) and how they are integrated into overall site implementation plan
- f) Create a rating system based upon BMPs in previous timber harvesting of watershed loggers to distribute to woodland owners

10. MANAGE FORESTLANDS TO DISCOURAGE EXOTIC SPECIES, DISEASE, AND PESTS
(1,3,5,9,11,13,15)

Goal: Decrease susceptibility to pests by increasing diversity of wood lot (1)

Strategies

- a) Encourage use of native vegetation species and discourage invasive species
- b) Remove trees susceptible to disease
- c) Avoid wounding trees when working in forest
- d) Discourage bark beetle populations by clearing woodpiles adjacent to live trees, particularly in spring and summer
- e) Restrict pruning of oak trees in spring and summer to prevent spread of oak wilt

Goal: Minimize effects of insects and disease through forest management (3,5,9,15)

Strategies

- a) Consider treatment of 100+ oak stands because of potential for gypsy moth impact
- b) Improve vigor of stand by remove of diseased trees
- c) Identify locations of exotics to reduce potential spread
- d) Employ natural control measures to control exotic species (Purple Loosestrife, Eurasian Water Milfoil, European Buckthorn and Multi-Floral Rose)
- e) Do more pre-harvest planning of timber sale size and layout, consideration of surrounding cover types, control of harvest method and timing, selection of site preparation techniques, matching the regeneration of species to the site, providing habitat for insects, birds and mammals that prey on forest pests, and limiting the size of single species plantations
- f) Pursue funding for and emphasize exotic control as a management tool on public and private lands
- g) Develop communications strategy for sharing successful control methods

Goal: Remove and prevent introduction of problem species and disease (3,5,11,15)

Strategies

Goal: Stated above on page 14

Goal: Develop and maintain database and GIS of natural and cultural resource information to guide planning and monitoring activities (13)

Strategies

Goal: Stated above on page 15

Goal: Identify and monitor exotic species (13)

Strategies

- a) Map and maintain database of noxious weed populations
- b) Eliminate activities within the park that perpetuate problem species
- c) Eliminate exotics and replace with native species when possible
- d) Use appropriate type and minimal amount of herbicides to accomplish exotic species control only when alternative methods are not applicable

MANAGEMENT AND PLANNING REPORT SUMMARIES

1. BEYOND THE SUBURBS: A LANDOWNERS GUIDE TO CONSERVATION MANAGEMENT

Report Source

Source Name	Source Address	Date	Title
MN Department of Natural Resources	500 Lafayette Rd. St. Paul, MN 55155	2001	Beyond the Suburbs: A Landowner's Guide to Conservation Management

Specific References in Report

Issues

1. Professional assistance to private landowners
2. Native vegetation
3. Forest regeneration
4. Conservation management on privately owned land
5. Woodland improvement practices

Visions

1. Manage forestlands to discourage proliferation of pests and disease
2. Improve timber stand quality

Goals (numbers link to Visions)

1. Increase diversity of wood lot to promote stand health and decrease susceptibility to pests (1)
2. Increase forest regeneration through natural and artificial methods and planting seedlings (2)
3. Increase consultations with professional foresters prior to forest harvesting (2)
4. Provide information about harvesting and marketing of trees on private land

Strategies (numbers link to Goals)

1. Encourage use of native vegetation species and discourage invasive species (1)
2. Remove trees susceptible to disease (1)
3. Avoid wounding trees when working in the forest (1)
4. Discourage bark beetle populations by clearing woodpiles adjacent to live trees, particularly in spring and summer (1)
5. Restrict pruning of oak trees in spring and summer to prevent spread of oak wilt (1)
6. Generate plan based upon present use of forested land, resource inventory, and future forest management objectives (2)
7. Develop plan to help landowners blend natural and physical characteristics of land with their interests and objectives (3)
8. Provide information regarding forest management options to private forest landowners (3)
9. Design forest management to minimize runoff
10. Avoid construction damage to vegetation

2. BLUFFLANDS DESIGN MANUAL

Report Source

Source Name	Source Address	Date	Title
Winona County/La Crescent Area Common Visions Project, Winona County Planning Department	177 Main Street Winona, MN 55987	1998	Blufflands Design Manual

Specific References in Report

Issues

1. Development patterns in Blufflands Region
2. Habitat loss and fragmentation
3. Groundwater contamination
4. Retaining beauty of natural, rural, and community landscape
5. Unique biological and geological setting
6. Loss of agricultural and natural lands to urban sprawl and non-farm rural development
7. Alternatives to current growth trends
8. Individual rights versus community needs and priorities

Visions

1. Preserve high level of biodiversity through habitat protection and compatible development
2. Maintain diverse and stable economy that is compatible with environmental quality and community character
3. Maintain health and safety of community by protecting food, air, water, and ground from pollutants; especially high risk of groundwater contamination due to geology of region and increase in number of sewage disposal systems and wastewater treatment facilities due to increased population
4. Explore potential for conservation easements
5. Promote development of greenway corridors
6. Encourage responsible outdoor recreation in Winona County and La Crescent area
7. Preserve natural, rural and community landscapes in a sustainable manner
8. Preserve agricultural way of life
9. Involve local people and communities in decision-making and planning

Goals (numbers link to Visions)

1. Limit development within environmental corridors to promote biodiversity (1,5)
2. Minimize urban sprawl by incorporating traditional development patterns (1,7)
3. Prevent soil erosion and other pollution during and after construction (3)
4. Limit development on sensitive lands to minimize negative impacts (3,7)
5. Increase land acreage under Minnesota Agricultural Land Preservation Program (8)
6. Promote adoption of ordinances to protect scenic character of local environment (7)
7. Promote preservation of natural character and reduce road construction impact by expanding number of roadways designated as Natural Preservation Routes (7)

Strategies (numbers link to Goals)

1. Retain natural vegetation during residential development of rural areas (1)
2. Provide government funds to managers of greenway corridors for maintenance (1,4)
3. Adjust current zoning regulations to maintain agricultural and natural land, retain urban-rural landscape boundaries, and promote stability of land uses (1,2,4)
4. Develop environmental corridors to protect sensitive lands, biodiversity, and community resources (1,4)
5. Consult professional naturalist prior to rural residential development (2)
6. Examine alternative development models such as Open Space Development Design (2)
7. Ensure adequate placement of waste disposal facilities on shore land lots (3)
8. Implement Overlay Districts to complement unique conditions such as floodplains, shore lands, greenways, scenic areas, etc. (3,4)
9. In rural areas, select building sites that will allow development to blend with surrounding areas (4)
10. Stipulate inclusion of greenway corridors in zoning ordinances (6)
11. Adopt ordinances by local governments that protect environmentally sensitive areas (6)
12. Develop Comprehensive Land Use Plan as statement of local government policy regarding development of community (6)
13. Incorporate goals of Minnesota Community-Based Planning Act (6)
14. Utilize GIS programs to examine land-use concerns including forest management, ground water quality and susceptibility, farm soil classifications, and changing development patterns
15. Examine applicability of Vermont's Act 250 Land Use Permit System to Blufflands Region
16. Utilize "Visualization Studies" to educate public on potential outcomes and impacts of development projects and gain information about public goals for the future

3. BLUFFLANDS/ROCHESTER PLATEAU SUBSECTION FOREST RESOURCE MANAGEMENT PLANNING

Report Source

Source Name	Source Address	Date	Title
MN Department of Natural Resources Division of Forestry	500 Lafayette Rd., St. Paul, MN 55155	2001	Blufflands/Rochester Plateau Subsection Forest Resource Management Planning, Draft Stand Examination List

Specific References in Report

Issues

1. Oak regeneration
2. Presence of Eurasian buckthorn and Gypsy moth
3. Biodiversity
4. Increased management activity in timber harvesting practices
5. Management of minor cover types
6. Old growth forest management
7. Private forest land management

Visions

1. Restore oak cover type age balance
2. Manage forest stands for biological diversity
3. Employ multiple management objectives
4. Maintain minor forest cover types

Goals (numbers link to Visions)

1. Minimize conversion of oak cover type to northern hardwoods (1)
2. Reduce impact of gypsy moth (1)
3. Minimize effects of insects and disease through forest management (2,3)
4. Enhance quality and health of minor forest types through silvicultural treatments (3,4)
5. Promote white pine cover types along riparian corridors and where it exists as a component of other cover types (3,4)
6. Increase area identified for Extended Rotation Forestry (ERF) (3)
7. Maintain flexibility in forest management decisions in order to react to shifts in market demand (3)
8. Minimize forest management impacts on aquatic resources and riparian areas (3)
9. Increase coordination between public, private, and state agencies during planning and implementation of harvests (4)

Strategies (numbers link to Goals)

1. Establish allowable cut calculations for oak in each age class (1)
2. Introduce large scale and repetitive prescribed burns to regenerate oak (1)
3. Salvage oak stands greater than 80 years of age that are damaged by natural disaster (1)
4. Share information and techniques on oak management (1)

5. Consider treatment for 100+ oak stands because of potential for gypsy moth impact (2,3)
6. Improve vigor of stand by removal of diseased trees (3)
7. Identify locations of exotics to reduce potential spread (3)
8. Review stands individually to determine frequency of harvest based upon stand specific conditions (4)
9. Identify secondary and tertiary white pine plant communities during stand selection (5)
10. Use prescribed fire and/or logging to provide mineral soil exposure to promote regeneration of white pine (5)
11. Prevent deer predation (5)
12. During initial planning, consider possible negative impacts in riparian areas due to harvest activity (8)
13. Develop and maintain transfer of knowledge between local managers and natural resource professionals (9)
14. Distribute information in order to coordinate involvement of Department of Natural Resource (DNR) managers and local public organizations during harvest planning (9)
15. Identify stands adjacent to public lands during stand selection process to determine opportunities for cooperative management (9)
16. Ecological Services staff to work with local managers in determining management prescriptions on sites containing highest biodiversity
17. Consider silvicultural practices that enhance endangered and threatened species and/or native plant communities
18. Incorporate protection of rare species into forest management objectives
19. Use voluntary site-level forest management guidelines
20. Limit clear cut harvest sites to no less than 5 acres or more than 60 acres
21. Incorporate landscape into harvest site boundaries; consider topography, potential for erosion and visual aesthetics
22. Determine harvest size based upon desired conditions of forest resource and considerations for wildlife species

4. CANNON RIVER WATERSHED PLAN

Report Source

Source Name	Source Address	Date	Title
Cannon River Watershed Partnership	1325 Armstrong Rd. Suite #118, Northfield, MN 55057	1996	Cannon River Watershed Plan

Specific References in Report

Issues

1. Removal of natural vegetation
2. Soil erosion and sedimentation
3. Rural and urban development
4. Pollutants to waterways: sediment, nutrients, toxic chemicals, fecal bacteria

Visions

1. Improve quantity and quality of wetlands, wildlife, water resources and natural vegetation (Restoration)
2. Create and maintain corridors of vegetation, especially along waterways, to provide habitat and to filter surface runoff (Corridors and buffers)
3. Stabilize surface water flows to lessen streambank erosion, siltation and flooding (Water storage)
4. Reduce impact of urban and rural development on the environment (Urban and rural development)
5. Manage and prepare for growth so that natural areas, water resources, and prime farmland are protected (Growth management)
6. Inform the people of the watershed about its function and value and about their role in maintaining its quality. Provide access to natural areas for education and enjoyment (Education and access)
7. Monitor the condition of the watershed and report results to the public and decision-makers (Monitoring)

Goals (numbers link to Visions)

1. Protect, enhance, expand and connect existing natural areas (1,2)
2. Increase native vegetation, where possible (1,2)
3. Restore and create wetlands (1,3)
4. Prevent further wetland loss (1,3,5)
5. Restore aquatic habitats (1,6)
6. Maintain and expand buffers and corridors in natural areas (1,2,3,4,5)
7. Remove livestock from streambanks and lakeshores unless part of a controlled grazing system (1,4)
8. Improve floodplain policy to discourage floodplain filling (2,3,5)
9. Make ditch maintenance more environmentally sound (2,3)
10. Increase permanent vegetative cover on highly erodible and riparian land (1,2)

11. Control erosion on construction sites (3,4,5)
12. Improve efficiency of nutrient, pesticide, and irrigation use (4,5,6)
13. Increase resistance of soils to erosion, even in the heaviest storms (3,5)
14. Minimize disturbance of natural areas, trees, wetlands, and waterways during development (1,2,3,5)
15. Reduce the use of pesticides and fertilizers on lawns and gardens (4,5)
16. Increase information available to residents through printed materials, field trips, demonstration projects, presentations, displays, meetings, events, one-on-one contact, etc. (1,2,3,4,5,6,7)
17. Expand park and trail systems (5,6)
18. Identify valuable natural features in or around existing parks to guide management and expansion plans (1,6)
19. Use a variety of monitoring techniques to identify problems and measure the impact of restoration and development projects (1,2,5,7)
20. Enforce existing laws and ordinances regarding: shore lands, floodplains, recreational and scenic river, ditch buffers, sand and gravel mining, stormwater management, erosion control, wetlands, rare and endangered species, woodland protection, feedlots, farm conservation plans, wastewater treatment, on-site sewage systems, wellhead protection, well construction and abandonment, pesticide handling and application, air emissions, hazardous materials handling, solid waste management, storage tanks, energy efficiency (1,2,3,5,6)
21. Encourage expansion of financial incentives available for land protection and conservation (4,5,6)

Strategies (numbers link to Goals)

1. Develop state, county and city parks, scientific and natural areas, wildlife management areas (WMAs), etc. in appropriate areas (1)
2. Improve park design so it contributes to restoration (1,18)
3. Support and participate in efforts of Big Woods Project, Ecological Indicators Initiative, and other cooperative opportunities (1,16)
4. Support efforts of School Nature Area Project (1,16)
5. Protect woodlands, bluffs and other natural areas through ordinances (1,20)
6. Work with park boards and other public agencies to encourage protection and expansion of natural areas (1)
7. Start a chapter of the Minnesota Land Trust in the watershed to handle land protection projects in the future (1,21)
8. Make small grants available for protection of sensitive areas (1,21)
9. Finance buffer strips using native vegetation (1,2,6,21)
10. Make prairie seed and planting instructions available at low cost (2)
11. Plant native vegetation along road right-of-ways and drainage ditches (2)
12. Make native trees available for planting on private land (2)
13. Plant native trees in parks (2)
14. Publicize availability and advantages of native vegetation (2)
15. Become a partner with Wetlands Initiative in an effort to restore the Straight River Marsh in Steele County (3)
16. Follow up on wetland prioritization workshops by gathering data and identifying ways to prioritize minor watersheds for wetland protection and restoration (3)
17. Study effectiveness of existing wetland restoration, creation, preservation (3)
18. Continue to work with DNR and sportsmen's clubs to fund planned wetland acquisition projects (3)

19. Renew commitment to restoration of Clear Lake (5)
20. Hold public meeting to present results of Clear Lake study (5)
21. Support Clean Water Partnership projects (5)
22. Use bioengineering for bank stabilization (5)
23. Discourage stream straightening (5,7)
24. Finance buffer strip planning (6,21)
25. Include buffer strips in conservation plans (6)
26. Direct Conservation Reserve Program (CRP) to riparian areas (6)
27. Use shore land buffers in parks (6)
28. Target buffer strip plantings to waterways with severe erosion (6,11)
29. Make greenway corridors a priority for research and outreach to local governments (1,6,20)
30. Encourage planning for greenways and shore lands in cities (1,6,20)
31. Support use of conservation overlay districts, park designation, and other mechanisms to protect greenways (6,18,20)
32. Support buffer strip planting, livestock fencing and managed grazing projects on shore lands (6,7)
33. Target headwater tributaries and shore lands for buffer planting/maintenance (6)
34. Finance controlled grazing projects and fencing along shore lands where appropriate (7,21)
35. Change floodplain laws to restrict development in floodplains (8,14,20)
36. Update floodplain maps where needed (8)
37. Discourage use of herbicides along ditches (9,12,15)
38. Enforce ditch buffer (9)
39. Replant ditches with native vegetation (2,9)
40. Target eroding areas for restoration (10,11,13)
41. Promote use of organic inputs (manure, compost, etc.) (12,15)
42. Use tillage and cropping practices that retain water (12)
43. Use clustering to protect areas with unique resources (14)
44. Require open space in every development over a certain size; allow transfer of open space credits to designated areas (14,21,22)
45. Plan park systems around environmental resources (14,18)
46. Provide information about cluster development, greenway protection, and other options for local governments (14)
47. Keep development and services out of environmentally sensitive areas (14)
48. Make information available on natural landscaping (16)
49. Educate residents about natural communities in subwatersheds (16)
50. Employ Forest Stewardship Ecologist to consult with private woodland owners (16)
51. Facilitate bioengineering demonstration projects (16)
52. Hold a meeting about planning and zoning for natural resource protection (16,20)
53. Use city community education and recreation programs to focus on city creeks and acquaint people with value of local water resources (16,19)
54. Provide information on shore land management to landowners (16)
55. Invite landowners to meetings and demonstration projects focusing on shore lands (16)
56. Provide shore land information to all lakeshore residents on Fox/Circle/Mazaska lakes (16)
57. Support education on conservation and sustainable agriculture by the Land Stewardship Project, RC & D, Extension Service, and other organizations (16)
58. Support education of contractors, landscapers etc. on working around natural features (14,16)
59. Co-sponsor events or to send brochures for other organizations' events to appropriate recipients in the watershed (16)
60. Present slide shows to local organizations (16)

61. Hold neighborhood meetings (16)
62. Fund demonstration projects (16)
63. Organize tours and field trips (16)
64. Support Cannon Link Trail, Cannon Valley Trail, Sakatah Singing Hills Trail (17)
65. Use natural corridors for non-destructive recreation (1,17)
66. Plan natural park systems around environmental resources (1,18)
67. Use conferences, presentations, media to publicize monitoring results (19)
68. Continue benthic monitoring in rivers and tributaries. Use meetings and newspaper articles to report results (19)
69. Investigate low-cost methods of monitoring water quality in more detail in local areas (19)
70. Use monitoring to measure the impact of improvement projects in subwatersheds (19)
71. Use monitoring to build the community and create social pressure to help improve the watershed (19)
72. Track monitoring efforts by different agencies, groups and schools in the watershed (19)
73. Involve citizens and schools in monitoring (16,19)
74. Support adoption of erosion control and feedlot ordinances in counties (11,20)
75. Educate landowners and encourage use of easements, purchase, lease, waiver of property tax, tax credits, heritage registry, etc. for land in conservation (prairies, wetlands, forests) (21)
76. Use economic incentives, transferable development rights, and other means to direct development away from sensitive areas (21)
77. Promote CRP position (21)

5. COMPREHENSIVE COUNTY WATER MANAGEMENT PLANS

Report Source

Source Name	Source Address	Date	Title
Fillmore, Goodhue, Houston, Olmsted, Wabasha, and Winona Counties. Reports obtained from Board of Water and Soil Resources	One West Water St. Suite 200, St. Paul, MN 55107	1989- 2001	County Comprehensive Water Management Plans

Specific References in Report

Issues

1. Soil erosion and sedimentation
2. Effects of development on water resources
3. Land management for the protection of existing natural communities
4. Education on proper use of natural resources and conservation practices

Visions

1. Promote land management practices that control soil erosion and sedimentation and improve water quality
2. Promote federal, state and local incentive programs that encourage implementation of conservation practices on woodlands, grasslands, agricultural lands, and grazing areas
3. Encourage reforestation in critical watershed areas
4. Encourage management practices that protect and preserve natural communities
5. Provide information and education to county residents and local officials on erosion, sedimentation and proper use of best management practices (BMPs)

Goals (numbers link to Visions)

1. Reduce soil erosion and contaminated runoff resulting in sedimentation and pollution of ground and surface waters (1)
2. Increase implementation of local ordinances and permitting procedures that focus on reducing erosion and runoff (1,2)
3. Reduce grazing on erodible stream banks and unstable hillside forest lands (1,2)
4. Increase use of woodland areas in water resource protection (riparian corridors, shore lands, and recharge management areas) and for preserving biodiversity (1,3,4)
5. Provide educational programs to contractors and landowners regarding erosion control practices for construction and development projects (1,5)
6. Enhance effectiveness of state and federal programs conservation programs (2)
7. Increase restoration of natural vegetation on marginal agricultural land and riparian areas through programs such as Conservation Reserve Program (CRP) and Reinvest in Minnesota Program (RIM) (2,4)
8. Increase protection of fragile and scenic corridors and establishment of buffer strips along streams through RIM, DNR, Fisheries, and others (2,4)
9. Increase technical assistance and support to private woodland owners for implementation of BMPs and other conservation practices on agricultural and forest land (2,5)
10. Increase forest land in high priority watersheds (3)

Strategies (numbers link to Goals)

1. Develop and revise Land Resource Management plans on private and state managed woodlands (1)
2. Identify areas contributing sediment levels exceeding total maximum daily loads (TMDLs) proposed by the Environmental Protection Agency (EPA) (1,2)
3. Utilize stream stabilization methods (1,4)
4. Establish vegetative buffer strips along streams (1,8)
5. Cooperate with local watershed groups in land forest management (3,10)
6. Present educational programs and demonstrations on erosion control practices (5)
7. Encourage landowners to consult with state and federal agencies [Natural Resources Conservation Services (NRCS), Soil and Water Conservation District (SWCD)] when installing conservation practices (5,9)
8. Conduct woodland tours to promote wise conservation management and inform how land management practices affect surface waters (5,9)
9. Use GIS program and other computerized soil information to assist County staff and landowners in conservation and land use planning (6,9)
10. Identify land cover types, land use, and ownership data and incorporate into county GIS system (6,9)
11. Identify areas well-suited for enrollment in CRP and RIM programs (7,8)
12. Employ natural control measures to control exotic species (Purple Loosestrife, Eurasian Water Milfoil, European Buckthorn and Multi-Floral Rose)
13. Expand Citizen Stream Monitoring Program in Root River and Upper Iowa River watersheds to establish baseline information and long term water quality data
14. Expand Whitewater Watershed Project as model for other watersheds needing land treatment to reduce soil erosion and impacts of sediments

6. EAGLE BLUFF ENVIRONMENTAL LEARNING CENTER STRATEGIC PLAN

Report Source

Source Name	Source Address	Date	Title
Eagle Bluff Environmental Learning Center	1991 Brightsdale Road, Rt. 2, Box 156B, Lanesboro, MN 55949	7/21/01	Eagle Bluff Environmental Learning Center Strategic Plan And Personal Communication (1/22/02)

Specific References in Report

Issues

1. Environmental education
2. Responsible use, renewal and appreciation of natural resources

Visions

1. Foster awareness, enhance respect and promote personal responsibility for natural world
2. Strengthen interdependence between government, education, business, environmental organizations and individuals
3. Promote experiential education for children and adults
4. Establish turn-key ecosystem management (forestry, wildlife, wetlands and prairie restoration) consulting services for members and those attending programs
5. Serve as model demonstration of hardwood forest
6. Become Forest Resource Center to educate community on forest management issues in southern Minnesota
7. Investigate long-term establishment of wood processing center

Goals (numbers link to Visions)

1. Improve environmental learning center curriculum that emphasizes outdoor experiential learning and recreation (1,3)
2. Provide enriching programs for all participants at Eagle Bluff to promote appreciation and continued stewardship of natural resources (1,3)

Strategies (numbers link to Goals)

1. Complete implementation of high quality interpretive signs on all trails by 2003 (1)
2. Establish and maintain Brightsdale Management Unit as model for ecosystem management by 2006 (1)
3. Expand and enhance relationships with day-use nature centers and regional community education programs (1)
4. Integrate sustainable agriculture and other sustainable systems into education program (2)
5. Develop adult educational opportunities (2)

7. GOODHUE COUNTY SOIL AND WATER CONSERVATION DISTRICT, 2001 ANNUAL PLAN OF WORK

Report Source

Source Name	Source Address	Date	Title
Goodhue County Soil and Water Conservation District	104 East 3 rd Ave. PO Box 335 Goodhue, MN 55027	2001	Goodhue County Soil and Water Conservation District, 2001 Annual Plan of Work

Specific References in Report

Issues

1. Technical assistance for private landowners
2. Community involvement in conservation activities
3. Soil erosion
4. Surface and groundwater quality
5. Environmental education in community and schools

Visions

1. Provide technical assistance to Goodhue County land users on planning and application of conservation practices that address natural resource problems in Goodhue County
2. Implement integrated natural resource management programs
3. Support and participate in environmental education programs in schools, churches, and through media

Goals (numbers link to Visions)

1. Promote, administer and provide technical assistance to landowners on state and federal cost-share programs available through the District (1)
2. Promote and provide technical assistance to landowners with land under long-term retirement through State and Federal programs (1)
3. Increase technical assistance to private landowners applying forestry practices through available programs and agency partnerships (1,2)
4. Increase technical assistance to landowners in planning and applying BMPs (1)
5. Expand technical assistance to landowners on streambank stabilization using bio-engineering techniques (1)
6. Expand establishment and maintenance of native plant communities (1,2)
7. Promote Soil and Water Conservation District (SWCD) activities and programs in the community (3)

Strategies (numbers link to Goals)

1. Inform and assist landowners on cost-share practices and funding; provide technical assistance to interested landowners (1)
2. Emphasize state cost-share programs based upon soil erosion and water quality impacts (1)

3. Provide on-site assistance for design and construction of conservation practices applied under cost-share programs (1)
4. Complete needs on Environmental Quality Improvement Program (EQIP) referrals for conservation practices (1)
5. Process and develop conservation plans for Reinvest In Minnesota (RIM) and Conservation Reserve Program (CRP) participants; promote continuation of programs and assist landowners with expiring CRP contracts (2)
6. Develop methods for enhancing RIM and Permanent Wetlands Preserve (PWP) easements by promoting diversity in plant cover (2)
7. Promote and assist interested landowners in US Department of Agriculture (USDA)/Natural Resources Conservation System (NRCS) programs [i.e. Wildlife Habitat Improvement Program (WHIP), Wetland Reserve Program] (2)
8. Administer District Tree Program, including planning and design of windbreaks and tree sales (3)
9. Provide services including tree mats, tree fertilizer packs and forbs seed (3)
10. Assist and provide financial support through Forestry Stewardship Program to implement project grant work plan with DNR Forester (3)
11. Promote and assist Stewardship Incentive Program and other forestry programs (3)
12. Promote use of tree revetment for stream stabilization and alternative streambank stabilization practices for demonstration purposes (5)
13. Evaluate effectiveness of established streambank stabilization projects (5)
14. Promote benefits of native species as opposed to non-native species (6)
15. Provide SWCD representation at Cannon River Watershed Partnership Board and Cannon River Joint Power Board meetings (7)
16. Provide assistance to watershed groups/alliances in planning and implementing watershed based approach to natural resource management (7)
17. Emphasize conservation planning and implementation in targeted sub-watershed of Little Cannon River, Prairie Creek, and Wells Creek (7)
18. Provide monthly news releases regarding SWCD's programs and activities (7)
19. Feature landowners in news releases who implement BMPs on their land (4,7)
20. Submit articles to Watershed newsletters (7)
21. Explore opportunities to display information on current resource issues at business locations and/or community functions (7)
22. Give presentations to civic organizations upon request (7)
23. Promote environmental education in schools through contracts, library and curriculum resources (7)
24. Sponsor and conduct annual 6th grade conservation field day (7)
25. Promote and encourage county churches to observe Soil and Water Stewardship Week (7)
26. Make necessary revisions and implementation actions for Comprehensive Local Water Plan
27. Coordinate actions with local, state, and federal government units in addressing soil and water resource concerns
28. Assist organizations that have common objectives with the SWCD program (7)
29. Distribute information to increase awareness and understanding of how daily activities impact natural resources (7)
30. Recognize local residents who practice land and water stewardship
31. Assist agriculture producers, county residents, and units of government on wetland protection programs and implementation of Wetland Conservation Act (4)
32. Review Wetland Conservation Act implementation and activities and coordinate with County and State Departments

8. GREENWAYS INITIATIVE IN RICHARD DORER HARDWOOD FOREST

Report Source

Source Name	Source Address	Date	Title
Tom McMillin Snake Creek Tree Farm	R.R.2, Box 21 Kellogg, MN 55945	2000	Letter to Deputy Commissioner of MN DNR

Specific References in Report

Issues

1. Fragmented forests and wildlife habitat
2. Expanding development in forested areas

Visions

1. Development of Greenway corridor initiative in Richard Dorer Hardwood Forest

Goals (numbers link to Visions)

1. Establish wildlife corridors to connect public lands (1)
2. Promote local support, involvement and leadership (1)

Strategies (numbers link to Goals)

1. Reach agreement between private landowners on use of lands for wildlife corridor (2)
2. Involve local and state hunting and fishing groups (2)
3. Provide tax breaks for landowners (2)

9. LEWISTON AREA FOREST RESOURCE MANAGEMENT PLAN

Report Source

Source Name	Source Address	Date	Title
MN Department of Natural Resources Division of Forestry	500 Lafayette St.Paul, MN 55155	1988	Lewiston Area Forest Resource Management Plan

Specific References in Report

Issues

Forest Recreation

1. Increase of Off-Road Vehicles causing increased erosion on steep and fragile soils, and conflicts with other recreation groups

Private Forest Management

2. Increase in private forest management requested assistance
3. Over cutting of oak and lack of regeneration on private lands, oak harvests on private land are twice what they should be to maintain a sustainable crop

Forest Pest Management

4. Pests include heart rot, Dutch elm disease, and butternut canker

Forest Products utilization and marketing

5. The following fiber sources are under utilized: round wood less than 10 inches in diameter (this includes small logs, tree tops, and branches); certain species including paper birch, cottonwood, soft maple, hickory, willow, box elder, aspen and conifers

Fire Management Program

6. Increased fire from increased population and forested land use

Nursery and Tree Improvement

7. Adequate planting material is not always available due to erratic and spotty seed production, and that shelf life for stored seeds is short

Education

8. A need to educate the public on the importance of forestry

Visions

Timber

1. Increase efficiency in timber sales and administration

Forest Recreation

2. Limit use of off-highway vehicles (OHVs) on state lands

Fish and Wildlife Habitat

3. Enhance watershed quality and stream productivity for trout and most game-fish
4. Improve and protect wildlife habitat
5. Maintain native plant communities and biological diversity

Private Forest Management

6. Develop programs to address over cutting and lack of oak regeneration

Forest Pest Management

7. Proactive management of pests

Forest Products utilization and marketing

8. Increased efficiency in logging and market development for low quality and softwood lumber and fiber products

Nursery and Tree Improvement

9. Have adequate seed sources

Goals (numbers link to Visions)

Timber

1. Have 75% of the wood cut scaled by consumer scale agreements (1)
2. Harvest allowable cut
3. Maintain oak and hardwoods

Land Administration

4. Increase area of state land in the Richard J. Dorer Memorial Harwood Forest
5. Control erosion

Forest Recreation

6. No OHVs allowed off trails (2)

Fish and Wildlife Habitat

7. Identify, inventory, and manage rare resources and ecologically significant features (5)

Forest Pest Management

8. Reduce pests (7)

Strategies (numbers link to Goals)

Timber

1. Establish consumer scale agreements with timber processing industries which use state sold wood (1, 2)
2. Increase staff (1, 2)
3. Reduce the risk of gypsy moth establishing itself (3)
4. Plant non-forested and de-forested areas with hardwood cover types (3)
5. Many specific silvicultural recommendations by cover type in Appendix

Land Administration

6. Acquire 41,287 acres identified in the Richard J. Dorer Memorial Harwood Forest. A Plan for Land Acquisition. (4)
7. Use structural and non structural (land use changes) means (5)

Forest Recreation

8. Increase state boundary signs and trail signs (6)
9. Increase cooperation in marketing and developing sites

Forest Roads

10. Gate roads (5)

Fish and Wildlife Habitat

11. Develop private forest management plans for landowners interested in wildlife management
12. Curtail type conversion or establishment of pine in prairies and oak savanna (7)
13. Prairies will be managed by prescribed burning (7)
14. Designate scientific management areas and cooperatively manage (7)

Forest Pest Management

15. Do more pre-harvest planning of timber sale size and layout, consideration of surrounding cover types, control of harvest method and timing, selection of site preparation techniques, matching the regeneration species to the site, providing habitat for insects, birds and mammals that prey on forest pests, and limiting the size of single species plantations (8)

Nursery and Tree Improvement

16. Develop and maintain seed collection areas to supplement private collections
17. Provide nurseries with accurate estimates of regeneration material needs in a timely fashion

10. LOWER MISSISSIPPI RIVER 2001 BASIN PLAN SCOPING DOCUMENT

Report Source

Source Name	Source Address	Date	Title
Basin Alliance for the Lower Mississippi in Minnesota, Fillmore SWCD	900 Washington NW, Box A, Preston, MN 55965	2001	Lower Mississippi River Basin Planning Scoping Document

Specific References in Report

Issues

1. Sustainable, renewable forest resources
2. Oak regeneration
3. Water quality of ground water, rivers and lakes
4. Diversity of aquatic ecosystem

Visions

1. Promote sustainability of forest resources through proper forest planning and management
2. Protect surface water quality through perennial vegetation
3. Maintain or improve groundwater, river and lake water quality
4. Manage water resources in a way that protects/increases habitat of aquatic organisms
5. Maintain streamflow and groundwater levels at historic ranges
6. Promote economic and environmental sustainability of cattle production

Goals (numbers link to Visions)

1. Increase use of appropriate timber harvesting techniques (1)
2. Increase use of forester-assisted private timber harvest from current levels of 10-20 percent (1)
3. Increase forested areas (1,2)
4. Improve current timber stand quality from present state of 73 percent poor, to medium-stocked conditions (1)
5. Map and identify areas within counties where perennial vegetation and riparian buffers exist or are needed (1,2)
6. Increase land under perennial vegetation (2)
7. Protect existing natural vegetation bordering major streams, tributaries, lakes, wetlands or sensitive groundwater recharge areas (2,3)
8. Increase stream miles with riparian buffers at least 50 feet wide bordering protected waters (2,3)
9. Create awareness among public of water quality and other resource benefits of vegetative riparian buffers in rural and urban settings (2,3,4)
10. Encourage citizen/partner involvement in water monitoring activities (3,4)
11. Restore area in pasture and noncultivated cropland to 1982 levels (630,000 acres) from current estimates of 448,000 acres (6)
12. Provide technical resources to individuals and organizations regarding planning and monitoring good prescribed grazing systems (6)
13. Increase staff in all agencies to promote proper grazing lands treatment (6)

14. Maintain or increase use of well-managed cattle grazing on steep slopes and in riparian areas (6)
15. Investigate opportunities for financial incentives or tax credits within the basin to encourage expanded woodlands, riparian areas, buffer lands, etc.

Strategies (numbers link to Goals)

1. Create rating system of basin loggers and distribute results to woodland owners. Ratings would be based on BMPs used in timber harvests already completed in the area (1)
2. Develop Forest Stewardship Plans that recognize utility and limitations of forest resources, and match biological diversity with soil type, climate and regeneration rates. Plans should include disease and pest control measures and means of controlling undesirable species (1)
3. Encourage use of cost share on private timber sales to obtain adequate regeneration, especially of oak (1,15)
4. Educate wood lot owners on proper timber harvesting techniques (1)
5. Seek funding sources to allow technical assistance to landowners (2,15)
6. Expand forests to land that experiences sheet and rill erosion, and land that has been voluntarily taken out of production (example: RIM and CRP land) (3)
7. Suggest tree planting for windbreaks, shelterbelts, as buffer areas between floodplains and agricultural land, gully heads as well as around springs, sinkholes, and headwater areas (3)
8. Encourage cost share for establishment of forests and protection against pests (3,4,15)
9. Remove cattle from woods (4)
10. Work with counties to obtain GIS data layers necessary to accomplish buffer needs assessment (5)
11. With universities and research/management agencies, collect and analyze data sets while providing training opportunities for interns and technicians (5)
12. Consult landowners concerning permanent easement programs such as Reinvest in Minnesota (RIM). Pursue funding through appropriate agencies and NGOs; support full-time position within the basin to encourage landowner enrollment in these programs (7,15)
13. Study impacts of livestock in riparian corridors (7,12)
14. Develop county land use ordinances to protect existing areas with natural vegetation (7)
15. Prepare document that outlines procedures for evaluating stream corridors to determine best possible treatment of riparian zones (7,9)
16. Prepare workshop to train service providers how to evaluate riparian areas (7,9)
17. Develop rural and urban landowner handbooks for county residents that include riparian buffer opportunities and programs (9)
18. Develop information media campaign incorporating local and regional media outlets (9)
19. Update fact sheets outlining various types of buffers and their benefits (9)
20. Encourage NGO participation in promotion of buffer implementation (9)
21. Prepare course materials and present courses on prescribed grazing systems and its components (12)
22. Develop grazing systems planning guidebook (12)
23. Develop evaluation program that updates acreage of permanent vegetative cover and riparian buffers on an annual basis (12)
24. Examine existing research on grazing in stream corridors and effects of grassed buffers on stream riparian areas (13)
25. Provide incentives to livestock producers for facilitating rotational grazing systems (14,15)
26. Pursue avenues of conservation tax credit for permanent conservation easements, shore land and other types of buffers (15)
27. Seek funding sources to provide incentives for riparian areas and riparian buffers (15)

11. MANAGING LANDSCAPES IN THE BIG WOODS ECOSYSTEM

Report Source

Source Name	Source Address	Date	Title
MN Department of Natural Resources	500 Lafayette St. Paul, MN 55155		Managing Landscapes in the Big Woods Ecosystem

Specific References in Report

Issues

1. Forest fragmentation
2. Loss of biological diversity
3. Continued developmental pressure on remaining natural areas
4. Water quality in lakes and rivers

Visions

1. Maintain forest communities, providing habitat for native trees and wildflowers
2. Provide habitat for wildlife
3. Protect soil and water resources

Goals (numbers link to Visions)

1. Protect integrity of unaltered forests and prevent further losses (1)
2. Improve quality and quantity of broad range of forest benefits in existing forests (1)
3. Assist in restoration of historic forest communities where they formerly existed (1)
4. Protect and manage oak savannas, brushlands and grasslands for wildlife (2)
5. Protect, restore and enhance a variety of wetland habitats (1,2,3)
6. Improve water quality of lakes and rivers (3)
7. Conserve native plants and animals within agricultural land use areas (1,2)
8. Employ strategies for reducing impact of development on Big Woods ecosystem (1,2,3)
9. Remove and prevent introduction of problem species to encourage health of historic plant communities (1,2)
10. Protect rare species and enhance their habitats (1,2)
11. Promote ecosystem level stewardship planning to protect and enhance regionally significant areas

Strategies (numbers link to Goals)

1. Develop forest stewardship plan for private forest landowners (1,2)
2. Retain all existing forest land; prevent conversion to nonforest uses (1)
3. Use BMPs in harvesting, thinning, and planting to control erosion and protect waters (2)
4. Manage forests for multiple species (2)
5. Maintain diversity of forest types and age classes (1,2)
6. Develop holistic view of local forest resources; it's relations to neighboring and regional forests (1,2)

7. Contact forester to develop restoration plan to include site selection and preparation, species selection, and maintenance (3)
8. Obtain native planting stock through DNR nurseries, Soil and Water Conservation Districts, parks, and local nurseries (2,3)
9. Identify dry soils, steep slopes, roadsides, streamsides, and uplands adjacent to wetlands as potential sites for restoration (4)
10. Attend demonstrations on and implement prescribed burning and rotational grazing techniques (4)
11. Avoid tree planting in or near grassland habitat (4)
12. Plug drainage ditches and tiles to restore drained wetlands; build earthen dikes to impound water (5)
13. Keep livestock out of wetland areas to improve habitat value (5)
14. Have private landowners apply for financial and technical assistance to protect, enhance, or restore wetlands (5)
15. Plant permanent vegetative filter strips near water resources (6)
16. Use BMPs to address pollution from each land use (6)
17. Adopt erosion control measures, especially on construction sites (6)
18. Limit use of fertilizers, pesticides, and herbicides on all lands (5,6)
19. Ensure feedlot operations and septic systems comply with laws and regulations (6)
20. Employ conservation and environmental farming practices (7)
21. Develop plan to protect and enhance habitat value of each component (7)
22. Emphasize native plant species that provide food and shelter for wildlife (7,9,10)
23. Select home sites at edge of woods or outside of woods (8)
24. Use native plants in home landscaping, being careful to avoid problem species (7,8,9,10)
25. Protect root systems of trees during construction (8)
26. Leave as many trees as possible on lot, along with native vegetation (8)
27. Identify, monitor, and control problem species as needed (9)
28. Implement plan to protect and maintain rare species or habitats on private property (10)
29. Bring ecosystem considerations into zoning ordinances (11)
30. Identify and work for public purchase of threatened remnants and other important habitats (11)
31. Consider bonding as way to preserve natural resource areas (11)

12. MINNESOTA 2001-2005 NONPOINT SOURCE MANAGEMENT PROGRAM PLAN

Report Source

Source Name	Source Address	Date	Title
Minnesota Pollution Control Agency Policy and Planning Division	520 Lafayette Rd. St. Paul, MN 55155- 4194	2001	Minnesota 2001-2005 Nonpoint Source Management Program Plan, Chapter 12 Forestry

Specific References in Report

Issues

1. Professional assistance for private forestry landowners
2. Implications of forest management decisions on water quality
3. Application and effectiveness of Best Management Practice (BMP) guidelines
4. Educational assistance for loggers, landowners, and resource managers
5. Sedimentation and erosion

Visions

1. Encourage private forest landowners to utilize professional and technical assistance (1)
2. Improve compliance with BMPs (2,3)
3. Research effectiveness and impacts of BMP guidelines (2,3,5)
4. Provide training to foresters, loggers, wildlife managers, and other natural resource managers on forest management guidelines (4)

Goals (numbers link to Visions)

1. Increase percentage of private forest landowners utilizing services of professional forester (1)
2. Increase use of BMPs through effective education programs (2,4)
3. Increase monitoring of BMP implementation (2)
4. Minimize impact of forest management and harvest on riparian areas, water resources, soil productivity, cultural and historic resources (2)
5. Minimize erosion and sedimentation due to forestry practices (2)
6. Continue to develop BMPs and improve implementation efforts (2,3)
7. Target research efforts to evaluate costs and benefits as well as effectiveness of BMPs in reducing negative impacts of forest management practices (3)
8. Expand implementation monitoring to include permanent forest management infrastructure; roads, water crossings, trails (3)
9. Increase forest vegetation on riparian areas through tree planting to improve water quality, absorb nutrients, restore habitat, provide alternative crop, improve aesthetics, slow flood discharge, and trap sediment

Strategies (numbers link to Goals)

1. Provide technical assistance to nonindustrial private forest landowners (1)
2. Evaluate implementation and educational success through field implementation monitoring (1,3)

3. Develop curriculum for local conditions to inform private forest owners about BMPs (2)
4. Develop early education curriculum in cooperation with professional associations (i.e. Project Wet, Project Wild, Project Learning Tree, Natural Resources in the Classroom) (2)
5. Survey landowners to determine effectiveness of guideline education programs (2)
6. Develop demonstrations of practices and equipment to reduce impacts and improve efficiency and cost effectiveness of forest operations (2)
7. Continue training programs for loggers and foresters and expand to include other natural resource professionals (2)
8. Establish program to recognize logger, natural resource managers, and management agencies that successfully implement guidelines (2,6)
9. Continue guideline implementation monitoring (3)
10. Adequately sample critical activities (3)
11. Identify meaningful sampling criteria (3)
12. Establish streamline on-site evaluations (3)
13. Evaluate effectiveness of filter strips in reducing sediment movement to water bodies and wetlands (4,5,7)
14. Initiate long term research to determine effectiveness of RMZ configurations for: thermal impacts, trapping sediments, capturing or trapping nutrients, providing critical habitats (4,7)
15. Evaluate soil disturbance impacts and recovery rates: erosion and channelization, infiltration, hydrologic regimes, and site productivity (4,5,7)
16. Use monitoring and research to effectively revise BMP guidelines, addressing those areas found inadequate (6)
17. Evaluate need for tax credits as incentive for guideline implementation (6)
18. Evaluate role of alternative technologies in timber harvest and other forest management activities (6,7)
19. Utilize native species and hybrid varieties of trees to restore riparian forest cover (9)
20. Promote easement programs or tax incentives for converting riparian cropland to forest cover (9)

13. NERSTRAND BIG WOODS STATE PARK MANAGEMENT PLAN

Report Source

Source Name	Source Address	Date	Title
MN Department of Natural Resources Division of Parks and Recreation	500 Lafayette Rd. St. Paul, MN 55155	1998	Nerstrand Big Woods State Park Management Plan

Specific References in Report

Issues

1. Increased development and habitat fragmentation
2. Soil erosion, sedimentation and water pollution
3. Exotic species
4. Use of fire in forest management
5. Management of endangered species
6. Impacts of human activity
7. Community education on environmental issues
8. Biological diversity

Visions

1. Promote development and restoration efforts that minimize fragmentation of natural communities and maximize biological diversity (1,8)
2. Convert lands adjacent to the park to ecological buffers (1)
3. Incorporate appropriate new management and ecological restoration techniques as recommended by research and evaluation (1,6)
4. Manage natural communities on landscape and ecosystem basis (1,2,6)
5. Understand the soil of the area; its limitations and capabilities (2)
6. Protect groundwater and surface water resources (2,6)
7. Control invasive exotic species (plants, insects, diseases, animals) (3)
8. Develop fire management plan (4)
9. Protect and enhance habitats for plant and animal species listed as endangered, threatened or special concern (5)
10. Provide educational and interpretive facilities to community in ecologically sensitive way (7)
11. Encourage compatible relationship between private landowners and park system through land stewardship/conservation practices (7)
12. Preserve and restore natural communities and native species richness (8)
13. Create Long-Term vegetation management plan for Nerstrand Big Woods (50-100 years)
14. Work with state, federal and county agents to protect and enhance land water quality within Prairie Creek watershed
15. Work with county and townships to develop Conservation District around Nerstrand Big Woods and other area Big Woods ecosystems

Goals (numbers link to Visions)

1. Improve and maintain trails and park facilities to support ecological goals; utilize native vegetation and plantings in construction and improvements (1,10)

2. Develop and maintain database and geographic information system (GIS) of natural and cultural resource information to guide planning and monitoring activities (3,13)
3. Increase native vegetation planting along riparian zone to prevent gully formation and erosion problems (5,6)
4. Increase protection for Federal and State listed species; and manage their habitats for optimal sustainability (9)
5. Identify and monitor exotic species (7)
6. Maintain and enhance diversity of forest types by managing oak forests, oak woodlands, and other fire dependent communities with appropriate fire management plan (8)
7. Develop partnership between park and area schools (10)
8. Increase level of understanding of cultural and environmental issues (10,11)
9. Maintain and increase natural communities and native species populations (12)
10. Identify degraded natural communities and ecosystems and implement restorative management on these areas (12)

Strategies (numbers link to Goals)

1. Design plan to reduce soil compaction in heavily used areas of the park (1)
2. Plant native trees and shrubs in campgrounds and picnic area to maintain shade and forest canopy (1)
3. Map and maintain database of all restorative and tree planting projects. Monitor site performance, seedling survival, erosion control, seed bank response, and forest growth (2)
4. Map and inventory existing plants and concentration of native plants worthy of protection (2)
5. Map and maintain database of noxious weed populations (2,5)
6. Complete inventory of biological features (2)
7. Develop and monitor biological indicators of ecosystem health (2)
8. Develop Ecological Classification System (ECS) (2,9)
9. Perform site-specific searches in areas proposed for development for endangered, threatened and special concern species (4)
10. Monitor impacts of visitor use on listed species (4)
11. Prohibit new development within areas of potential habitat of Minnesota dwarf trout lily without thorough search for populations (4)
12. Diminish sheet erosion associated with the main campground that lies upslope of main population of trout lily (4)
13. Retain rip-rap along Prairie Creek to prevent erosion of Minnesota dwarf trout lily colonies along stream (4)
14. Eliminate activities within the park that perpetuate problem species (5)
15. Eliminate exotics and replace with native species when possible (5)
16. Use appropriate type and minimal amount of herbicides to accomplish exotic species control only when alternative methods are not applicable (5)
17. Establish active Big Woods Stewardship group (8)
18. Incorporate concepts of biodiversity, ecosystem management and watershed/landscape management into park interpretive programs and displays (8)
19. Study deer population dynamics; including impacts of hunting pressure and timing of harvest on population composition, and impacts of park on surrounding areas' deer population and on hunting opportunities (9)
20. Maintain old growth forest (9)
21. Restore and maintain mix of hardwoods, oak savanna, and prairie (9,10)

14. A PLAN FOR THE BIG WOODS PROJECT

Report Source

Source Name	Source Address	Date	Title
The Big Woods Project	328 Central Ave. Faribault, MN 55021	1996	A Plan for the Big Woods

Specific References in Report

Issues

1. Fragmented landscape
2. Developmental threats to Big Woods area
3. Native plant and animal diversity
4. Erosion
5. Surface and ground water quality
6. Qualities of the rural landscape

Visions

1. Protect remaining natural areas, with special emphasis on forests representative of historic Big Woods
2. Reduce stresses which threaten natural area health
3. Protect the rural landscape and lifestyle qualities
4. Prevent loss of native plant and animal diversity
5. Prevent soil loss from human related erosion and other factors
6. Protect water quality of streams, rivers, wetlands, and groundwater

Goals (numbers link to Visions)

1. Protect Nerstrand Big Woods State Park, Seven Mile Woods, Cannon River Wilderness Area and other natural areas (1)
2. Improve health and integrity of natural areas through research, monitoring, and restoration (1,2,3)
3. Promote economic activities and lifestyles that are compatible with and help sustain natural areas and native plants and animals (1,3,4)
4. Maintain and increase native plant and animal diversity (4)
5. Reduce soil erosion (5)
6. Maintain and increase water quality (6)

15. THE PRAIRIE-FOREST BORDER ECOREGION: A CONSERVATION PLAN

Report Source

Source Name	Source Address	Date	Title
The Nature Conservancy			The Prairie-Forest Border Ecoregion: A Conservation Plan

Specific References in Report

Issues

1. Loss of habitat due to unplanned residential and commercial development
2. Incompatible agricultural management/incompatible forestry practices
3. Exotic species/overabundance of certain native species
4. Fire exclusion
5. Lack of contiguity among protected areas/insufficient size and buffering of protected areas
6. Altered hydrological regimes

Visions

1. Utilize plant community, aquatic system, and species targets to identify and implement restoration and conservation management
2. Restore occurrences of matrix communities (i.e. north-central bur oak and central mesic tall grass prairie)
3. Use identified Ecologically Significant Areas as means to develop conservation strategies and achieve conservation targets for plant communities, aquatic systems, and species

Goals (numbers link to Visions)

1. Minimize threat from unplanned residential and commercial development (1,3)
2. Minimize incompatible agricultural management (1,3)
3. Minimize threat of exotic species (1,2,3)
4. Increase appropriate use of fire in conservation management (2)
5. Increase habitat available through increased use of proper restoration techniques (1,2,3)
6. Minimize threat from water management practices (1,3)

Strategies (numbers link to Goals)

1. Advocate for state-wide or regional funding for land acquisition and tax incentive programs for landowners who take appropriate steps to conserve their property (1)
2. Pursue multi-state funding opportunities for conservation work (1)
3. Collaborate with local governments and conservation organizations to develop sound land use plans (1)
4. Advocate for funding for the Environmental Quality Improvement Program (EQIP), Wildlife Habitat Improvement Program (WHIP), Conservation Reserve Program (CRP), and the Conservation Reserve Enhancement Program (CREP) (2)
5. Find Federal funds for Natural Heritage programs to use in advising management/conservation programs (2)

6. Pursue funding for and emphasize exotic control as a management tool on public and private lands (3)
7. Research biological control of garlic mustard (3)
8. Develop communications strategy for sharing successful control methods (3)
9. Partner with Minnesota Department of Transportation (MNDOT) on right-of-way management (3)
10. Outreach on fire methodology/training for partners (4)
11. Increase use of prescribed burns on public and private lands (4)
12. Public education on need for prescribed burns (4)
13. Advocate and find funding for improved restoration and management of public lands (5)
14. Develop a template for restoration to use in education and outreach (5)
15. Educate local land managers and public officials about the need for restoration and about appropriate restoration techniques (5)
16. Identify restoration success as models for other groups (5)
17. Establish native seed farms for use in restoration (5)
18. Build a relationship with the Army Corps of Engineers (6)
19. Work with United States Fish and Wildlife Service (USFWS) on management of refuges along Mississippi River (6)
20. Outreach on impact of dams to aquatic resources (6)
21. Share results of ecoregional planning with state fisheries staff (6)

16. ROOT RIVER SOIL AND WATER CONSERVATION DISTRICT COMPREHENSIVE PLAN

Report Source

Source Name	Source Address	Date	Title
Root River SWCD	Suite 4, AC Service Center 603 N. Sprague St Caledonia, MN 55921	2000	Root River Soil and Water Conservation District Comprehensive Plan

Specific References in Report

Issues

1. Concerns about flooding
2. Upland problems with erosion caused by rainfalls which was causes ditches and lower yields on cropland
3. Roadside erosion
4. Streamside erosion
5. Shift away from animal agricultural causing a decrease in practices such as contour strip cropping and conservation cropping systems, and increase in residue management and terraces
6. Pollutants in surface and ground water
7. Oak forests are not regenerating adequately
8. New home builders
9. Overgrazing, improper pasture management, recreation areas, and construction sites can result in excessive erosion and need proper management

Visions

1. Install conservation practices on lands as an alternate to abandoning farms
2. Landowners develop adequate erosion control plans for new sites

Goals (numbers link to Visions)

1. Continue soil erosion control on 85% of agricultural lands
2. Increase attention on lands adjacent to cropland and roadsides with soil erosion
3. Annually work with local and county authorities to reduce roadside erosion
4. Implement and market cost effective methods of streambank protection to landowners
5. Assist in the implementation of the Houston County Comprehensive Water Management Plan
6. Increase management on forested land within the District by 10%
7. Address and promote wildlife habitat as part of all resources management plans with a goal of 100 acres / year
8. Protect ground water

Strategies (numbers link to Goals)

1. Conservation practices: crop rotations, residue management, contouring, contour strips, terraces, diversions, waterways
2. Livestock exclusion on woodlands to promote regeneration
3. Special emphasis on the education of woodland owners to improve Oak regeneration
4. SWCD assist landowners in developing an adequate erosion control plan for new sites
5. Participate in technical and administrative duties of the following programs: Environmental Quality Incentive Program (EQIP), Natural Resources Conservation Service (NRCS), cost share funding, state revolving fund (SFR), Reinvest In Minnesota (RIM), Minnesota Association of Soil and Water Conservation Districts (MASWCD), Board of Water and Soil Resources (BWSR), and new programs as they become available (1)
6. Work with Natural Resources Conservation Services (NRCS) to administer the provisions of the farm bill (CRP, sound conservation practices, wetland determination) (1)
7. Develop or revise 400 resource management plans by 2005 (1)
8. Promote conservation plans on land coming out of CRP (1)
9. Educate and provide technical and financial assistance to road authorities on erosion control (3)
10. Make mulching equipment and supplies available to road authorities at affordable rates (3)
11. Participate in at least one project annually that promotes stream protection and use as a tool to promote these practices (4)
12. Feedlots: work with landowners to upgrade systems; develop cost effective practices to control animal waste (5)
13. Streambanks: implement vegetative filter strips along streambanks, springs and rivers; encourage enrollment into RIM, encourage buffers (5, 7)
14. Support, expand, and continue tree programs, informational programs, and tree planting programs (6)
15. Work with DNR and Root river woodlands council to increase services (ex. forestry tour)
16. Education (schools, environmental field days, posters, tours, conservation projects, tree program, annual conservation dinner, forestry tour, county fair, newsletters, articles, plans and reports, workshops, clubs)
17. Encourage enrollment into Federal and State lands retirement programs and maintain wildlife on these acres (7)
18. Assist in development of wildlife habitat areas that would qualify for annual FSA setaside acres (7)
19. Cost share on upland wildlife habitat (7)
20. Conduct annual meeting with are wildlife groups to discuss concerns and operations (7)
21. Encourage landowners to protect wetlands and streambanks using BMP
22. Offer household hazardous collection (8)
23. Encourage testing of drinking water (8)
24. Update rural septic systems (8)

**17. SOUTHEASTERN MINNESOTA HISTORIC BLUFF COUNTRY CORRIDOR
MANAGEMENT PLAN**

Report Source

Source Name	Source Address	Date	Title
Southeastern Minnesota Historic Bluff Country	PO Box 609 Harmony, MN 55939		Southeastern Minnesota Historic Bluff Country Corridor Management Plan

Specific References in Report

Issues

1. Quality of resources within Historic Bluff Country
2. Balancing protection and promotion within the Byway
3. Over development
4. Potential groundwater contamination due to sensitivity of karst topography

Visions

1. Promote stewardship, visitation, and interpretation of area natural resources
2. Improve and maintain Historic Bluff Country Scenic Byway
3. Attain designation as National Scenic Byway
4. Promote future development that ensures protection of bluff lands and water quality

Goals (numbers link to Visions)

1. Educate local residents and visitors on protection and enhancement of area's natural resources (1,2,4)
2. Increase awareness of natural, scenic, historical, cultural, and recreational resources (1,4)

Strategies (numbers link to Goals)

1. Install interpretive signs explaining unique natural features, such as sinkholes (1,2)
2. Provide trail signs and guided tours in Richard J. Dorer Memorial Hardwood Forest to inform visitors about natural flora and fauna (1,2)
3. Inform visitors of Mounds Prairie State Natural Area about native prairie restorative process (1,2)
4. Enhance Harmony-Preston Valley State Trail by providing interpretive information at trailheads (1,2)
5. Coordinate with Eagle Bluff Environmental Learning Center and Houston Nature Center in providing natural resource information (2)
6. Identify and preserve important natural resources with Heritage Preservation Commissions (HPCs) (2)
7. Prohibit development on bluff tops

18. WELLS CREEK WATERSHED PARTNERSHIP WATERSHED PLAN

Report Source

Source Name	Source Address	Date	Title
Wells Creek Watershed Partnership	1801 S Oak St. Lake City, MN 55041	1995/ 1996	Wells Creek Watershed Partnership Watershed Plan 1995/1996

Specific References in Report

Issues

1. Native plant communities
2. Sedimentation in Wells Creek affecting health of stream and watershed
3. Residential developments within the watershed
4. Local management of natural resources
5. Health of resources and local community

Visions

1. Create vegetative buffers in riparian zones to provide wildlife corridors, stabilize stream banks, and absorb and filter surface runoff
2. Improve land and water habitat quality
3. Diversify plant communities, emphasizing native species
4. Implement soil conservation practices
5. Encourage active community involvement in implementing long-term, comprehensive watershed goals
6. Provide educational opportunities to inform residents of natural resource systems
7. Management for a sustainable rural quality of life
8. Encourage reforestation and good forest management
9. Promote sustainable agricultural systems

Goals (numbers link to Visions)

1. Maintain and improve riparian vegetation and management (1,3,8)
2. Manage stream and surrounding areas to reduce temperature, maintain diverse channel, and restore stable banks and permanent flow (1,2,4)
3. Increase reforestation and use of good forest management practices (1,3,8)
4. Increase vegetation in erosion-prone areas (1,4,8)
5. Reduce and prevent barnyard runoff (1,2)
6. Provide educational opportunities and distribute information (5,6)
7. Explore existing assistance programs that can aid in achieving partnership goals (5)
8. Participate in county planning, zoning and local water planning (5)
9. Retain forest industry profits in local economy (5,8)
10. Increase knowledge of past and present conditions of area in order to better understand watershed (5,6)

Strategies (numbers link to Goals)

1. Establish effective buffer strips on slopes, woodlands, uplands (1)
2. Examine stream corridor segments individually to assess best management projects (1)
3. Promote BMPs (stand erosion control and stream buffering) (1)
4. Develop concept of watershed wellness log to chart improvement (1,10)
5. Manage woody cover and re-vegetate stream banks (1,2,3)
6. Limit or improve cattle crossings (2)
7. Implement rotational grazing and grazing corridors (2)
8. Develop tree buying cooperative (3,6)
9. Utilize forest stewardship planning to provide technical assistance and financial incentives (3,7)
10. Develop local nursery for Wells Creek to assure appropriate and available species (3)
11. Sponsor distribution system of diverse tree species and sizes (3)
12. Provide forest management assistance and incentives to landowners for sustainable harvest systems (3,7)
13. Schedule tours and provide information, both technical and financial, through catalogue of programs and newsletter (6)
14. Hold public informational and educational meetings (6)
15. Share information with townships and use them as resource to distribute information (6)
16. Form a Sustainable Farming Association in Wells Creek (6)
17. Examine economics and mechanics of rotational grazing systems and availability of cost share funds (with assistance of technical committee) (6,7)
18. Identify and mobilize programs for compensation of land taken out of production (7)
19. Utilize zoning and permitting to maintain natural habitats (8)
20. Plan development on bluff lands and other sensitive areas carefully to maintain rural character of region (8)
21. Identify Wells Creek Partnership in local water plan (8)
22. Identify local markets for forest products (9)
23. Identify potential local industries and encourage ecologically viable development (9)
24. Identify high water levels (HWL) in watershed and receive instruction on appropriate management of these areas (10)
25. Collect information on land use distribution within the watershed (i.e. area currently grazed, under cultivation, pasture lands, feedlot location) and hydrology (stream flow, infiltration, run-off, flood plain corridor, "ideal" channel characteristics) (10)
26. Establish a monitoring system to evaluate changing conditions within the Watershed (10)
27. Shift focus in farm programs to diverse agricultural systems

19. WHITEWATER WATERSHED FOREST RESOURCE DIAGNOSTIC REPORT

Report Source

Source Name	Source Address	Date	Title
USDA Forest Service, Northeastern Area State and Private Forestry	1992 Folwell Ave. St. Paul, MN 55108	1996	Whitewater Watershed Forest Resource Diagnostic Report

Specific References in Report

Issues

1. Dutch elm disease
2. Forest grazing
3. Oak regeneration
4. Over harvests of oak on private land
5. Lack of application of Best Management Practices (BMPs) on private land
6. Soil erosion
7. Conversion of forest to agriculture

Visions

1. Provide professional forestry assistance to private landowners to ensure proper management and productive harvests
2. Use of trees in agricultural ecosystems
3. Implement conservation practices and establish natural vegetation in riparian zones to improve stream ecosystems

Goals (numbers link to Visions)

1. Increase professional assistance for private forest owners (1,2,3)
2. Increase compliance rates of BMPs on private land, steep terrain, and roads (1,3)
3. Increase application of critical BMPs to protect the water bodies of the Whitewater Watershed (1,3)
4. Reduce grazing on forest land (1,3)

Strategies (numbers link to Goals)

1. Encourage use of trees as windbreaks and snow fences (1)
2. Support use of high value hardwoods or horticultural species as riparian buffers (1,2,3)
3. Convert marginal cropland or pastures to oak savanna (4)
4. Promote oak regeneration, particularly on private land (1,4)
5. Practice alley cropping to improve crop production, decrease erosion, and diversify income
6. Remove livestock from forests (4)

**20. WHITEWATER WATERSHED PROJECT LONG-TERM WATERSHED
IMPLEMENTATION PLAN**

Report Source

Source Name	Source Address	Date	Title
Whitewater Watershed Project	Linda Dahl PO Box 39 Lewiston MN 55952		Long-Term Watershed Implementation Plan

Specific References in Report

Issues

1. Best management practice implementation
2. Loss of income to landowners
3. Poor oak regeneration
4. Harvest rates exceed growth rates
5. Reduced quality of forest resources
6. Poor stocking of forest land
7. Rapid harvesting on private forestlands
8. Wildlife habitat

Visions

1. Promote proper timber harvesting techniques
2. Forest establishment in critical erosion areas
3. Expanded education and technical assistance
4. Timber stand improvement
5. Forest stewardship planning

Goals (numbers link to Visions)

1. Evaluate timber harvesting BMPs on 10% of harvested sites annually (1)
2. Expand forested areas within the watershed to prevent water runoff and erosion (2)
3. Improve current critical BMP implementation from present rate of 71% (2)
4. Increase “forester-assisted” private timber harvest from current levels of 10%-20% to 100% (3,5)
5. Provide a forest stewardship plan to every forest landowner (3,5)

Strategies (numbers link to Goals)

1. Intensify audit procedure to evaluate success of current BMP implementation, especially those pertaining to roads (1)
2. Estimate timber quantities harvested in areas where BMPs are being applied (1)
3. Increase adherence of BMPs for roads in forested areas (1,3)
4. Evaluate variety of BMPs (feedlot, manure, field erosion) and how they are integrated into overall site implementation plan (1,3)
5. Promote planting of trees and shrubs to revitalize poor quality timber stands (2)

6. Promote woodland establishment in areas voluntarily removed from production due to erosion problems, such as land enrolled in RIM and CRP (2,3)
7. Create a rating system based upon BMPs in previous timber harvesting of watershed loggers to distribute to woodland owners (3)
8. Provide technical assistance to private landowners to evaluate practices and measure progress (4)
9. Evaluate harvest operations following rain events to view how successful current practices are
10. Conduct annual telephone survey of watershed landowners with forested land to determine extent of educational and technical assistance being provided
11. Encourage cost sharing of pre- and post- sale treatments for private timber sales to promote regeneration, particularly for oak species
12. Expand use of brochures, field days, and seminars to further watershed education
13. Cost share for establishment of forests and for pest protection
14. Remove cattle from forests
15. Educate landowners on oak regeneration techniques
16. Promote oak forest management for wildlife habitat and overall quality of forest resource

**APPENDIX A – MEMO REQUESTING REPORTS RELATING TO FOREST RESOURCE
MANAGEMENT**

November 13, 2001

Dear Sir or Madam:

In 1995, the Minnesota Legislature enacted the Sustainable Forest Resources Act. The Act established the Minnesota Forest Resources Council (see enclosed brochure) that provides advice to the Governor, Legislature and management agencies on forest sustainability issues. Under the Council's direction, the Act established the Landscape Program to enable long-range strategic planning and coordination to occur, to the extent possible, across all forested regions of the state and across all ownerships. This is a voluntary program designed to develop a broad vision of forest sustainability and strategies to help move in that direction. The planning must recognize existing planning processes and identify a general process that fits with other landscape-based forest resource plans.

In 1998 and 2000, the Legislature added specific references to the southeast landscape (see enclosed map) to complete a broad statement of desired future conditions, key issues, and strategies. In 1999, the Council partnered with the Southeast Rural Sustainable Development Partnership (the Experiment in Rural Cooperation) to define issues and opportunities related to management of forested lands in southeast Minnesota. That effort started with a survey sent to over 90 stakeholders last winter. In the spring of 2001, some of these people met to discuss the priority issues and opportunities identified by the survey. Another meeting to develop research and education projects with the University of Minnesota was held in September.

The Council would like to contribute to and complement this work by developing a desired future vision, goals, and strategies for the southeast landscape. In order to do this, we would like to utilize the work of the local units of government, agencies, and groups. We would appreciate it if you could send us any documents you or the entity you represent have developed or contributed to that contain forest resources issues, desired conditions, goals, and/or strategies for any area within the southeast landscape. Please note, by the enclosed postcard, that we are also willing to come and meet with you to discuss this request.

This winter, we will go through these plans and pull out the references to forest resources that relate to issues, desired visions, goals, and strategies. This information will be compiled into a concise document and sent back to you for review. At that time, we would plan a meeting to discuss the information we have pulled together to examine what future broad-scale linkages and cooperation can be built on. We understand this is a large landscape covering a variety of ecological areas and thus as this process moves forward we will have to adapt to the different perspectives in the region.

We greatly appreciate any information you can provide us. If you have questions, don't hesitate to contact me at 651-296-0757, or email chad.skally@dnr.state.mn.us.

Sincerely,



Chad Skally
Minnesota Forest Resources Council, Landscape Program
500 Lafayette
St. Paul, MN 55155-4044
Phone: 651/296-0757, Fax: 651/296-5954

enclosures: map, brochure, reply postcard